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www * You can find these stories at ***architecturalrecord.com***, including expanded coverage projects, continuing-education opportunities, and Web-only special features.

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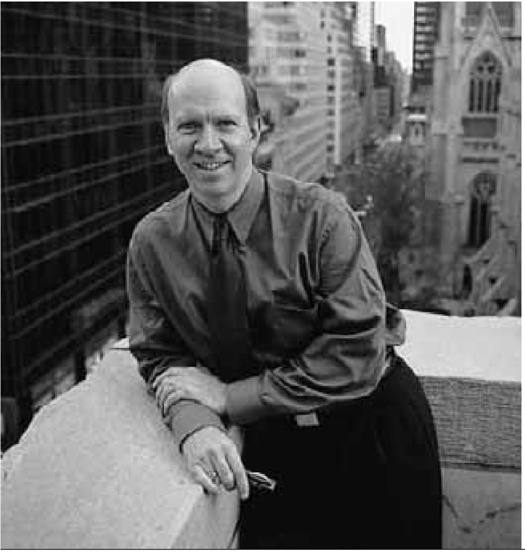

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Editorial

A private army

By Robert Ivy, FAIA

Weeks later, the firepower lingers. Out of the barrage of coverage from the war in Iraq, one graphic image stands out: that of the young soldier triumphantly draping the head of the statue of Saddam Hussein with the American flag. His actions, those of an exuberant young warrior reaching the capital, have provoked conflicting reactions in viewers, depending on where you stand in the world. While to some in the United States, the message is of liberation from a repressive regime, to many in the Arab world and beyond, the semiotic message is mixed, including humiliation in defeat and occupation by a superior force. How America and its allies act in the following months will determine the true meaning of our arrival in Baghdad.

What this war has proved, once again, is America's dominance of the world scene. While we have no specific territorial ambitions, since the presidency of Theodore Roosevelt and the subsequent opening of the Panama Canal in 1914 (featured in this issue of ARCHITECTURAL RECORD), the United States finds itself in a position of inarguable military hegemony, economic prowess, and cultural ubiquity. Witness our virtual empire in which the English language is widespread, almost universal; our media blanket the farthest islands of the South Pacific, a situation only broadened by the Web; Eminem and Big Macs rule in Philippine villages.

With all our might and reach, a cautionary note is in order. Think of the numbers: From a global population of 6.286 billion, the United States comprises 290 million, or only 4.2 percent of the total. Yet despite a challenging year to the economy, America's gross domestic product of $10.82 trillion overwhelms Japan's, our closest competitor's, by three times. As Michael Hastings pointed out in a recent issue of Newsweek, though we may be the premier world economy, we represent a minority of the world's population, and powerful minorities can become easy marks for resentment. Experience shows that towers can become targets.

That's where architecture enters the picture. Architects are frequently the advance guard, the first emissaries, called forth by clients around the world, not for their power, but for their skills. International governments and private entrepreneurs seek American expertise in organizational management, in planning and building. Sometimes they employ us for our art. Rather than fearing us, our disparate partners place their trust in us, commissioning small- and large-scale enterprises, from housing to whole cities.

If our related professions played an active role in dismantling Iraq, while failing to protect the country's—indeed, the world's—irreplaceable cultural patrimony, our primary emphasis as architects in the coming days will lie outside of battle, as we articulate vision or strive to house populations. At this tenuous moment, our ambassadorial role calls for us to open our eyes and ears. Then we can avoid the imposed solution (bypassing architectural imperialism, if you will), assimilating the history of culture and place as we translate our clients' specific languages into physical form.

Today, despite the ongoing war, we American architects continue to meet clients in boardrooms in the United States and to travel abroad to pursue new work. This small airborne population of dedicated, intelligent women and men constitutes a private army of intellectual power, armed not with weaponry but with something stronger—the power to build.

While we all have been transfixed by the events in Iraq, regardless of personal opinions of the war, building always supercedes destruction. Throughout human history, it is our structures that have endured, whether in the Muslim world or in Western democracies. We are needed in the aftermath, to repair the diplomatic and physical damage that has been done and to plan for a new day, replacing firepower with brainpower—offering architecture as a step toward improved international relations for a world rich in individual cultures straining toward expression.

Robert Ivy

Good News! This year, RECORD is proud to have won a trifecta: three Jesse. H. Neal Awards, sponsored by American Business Media. Additionally, RECORD is a finalist in the General Excellence category for a National Magazine Award, sponsored by the American Society of Magazine Editors.

Letters

Wherefore art we?

Thank you for the article “Where Are We Now?” [March 2003, page 88]. For years I have used the phrase “cultural bankruptcy” to describe the plight of the wealthiest nation in the world during its most recent, unprecedented period of prosperity. I believe our nation is undergoing a systematic and calculated destruction of “community.” Florida, perhaps, leads the nation as a severe case of this malaise. My question to you is simply whether there exists, within the AIA, individuals who share a commitment to political change (I am not referring to a choice of parties). Who are they and how can I be of help?
—Roger Grunke, AIA
Tampa, Florida

Comfortably numb

My god! I just read the commentary on Libeskind’s plan for the World Trade Center (WTC) site by Joseph Giovannini and am entirely disillusioned [Commentary, April 2003, page 89]. I cannot believe that such a spiritual and poetic proposal is becoming a numbed-down microcosm of corporate America. More so, I find it uncomprehensible why Libeskind conceded so much—granted, I am a naive fourth-year architecture student—but how? How am I to venture into this vast and varied market with enthusiasm when the most important and public commission in history does not get built to decent expectations? I had to sound off to somebody, and I am glad your magazine did, as well. I hope the “democracy” we live in does, as well, and this tragedy does not add insult to the tragedy of 9/11.
—Sean Ramseier
Arizona

Act locally

It is high time architects stimulate community conversation through the design process. The newly ignited passion for the built environment arising out of the World Trade Center designs has engendered an unprecedented interest in architecture and architects. The design for the WTC site should be only the beginning of this engagement with the public to become both aware of architecture and involved in the discussion of design. However, we can only hope the excitement and interest generated from the WTC process will be maintained and will expand to foment an interest in projects throughout the country. If we want this to continue and the community to truly take an interest in our professional contribution to society, architects must act through our professional association to continue to educate, enlighten, and challenge our communities.

Therefore, AIA must seize this moment to nurture this newly discovered awareness of architecture and architects by making relevant statements of the great qualities within each of our communities. To achieve this end, we need to promote our profession and its endeavors at a national level, but more importantly, we must support local programs to achieve a greater sense of awareness.
—Judson A. Kline, AIA
Cleveland

Careful what you wish for

Each profession goes through its cycle of highs and lows: Architecture was a focal point under Wright and Mies, business had its heyday in the 80s and 90s, medicine and science have the public’s trust now. Libeskind and Bob Ivy seem to be signaling the turn of the tide as “architecture goes mainstream” [Editorial, March 2003, page 21].

We have been grumbling so long about our salaries, the public’s lack of trust in us, what will happen when we suddenly get what we want? What will happen when society turns to us architects, and we are asked to lead?

When the spotlight shines on us, will we see a profession that bickers amongst itself, individuals cutting each other down to try to get ahead? Or will we see architects listening to each other’s ideas, truly collaborating with themselves and with the public?
—Mimi Tsai, AIA
Chicago

A sense of scale

Mr. Campbell’s comments on the recent World Trade Center proposals [Critique, February 2003, page 75] are consistent with his typically balanced observations of architecture. Unfortunately, his parenthetical “sidelight” dismissing the relevance of the World Trade Center to the Port of New York and the Port Authority agency is completely unbalanced and factually erroneous. He asserts that the original 1960s program has been seemingly resurrected for the current project. He also should have noted or understood, then, that the program’s primary focus was the development of a “world trade center” to bring international trade businesses, goals, interests, and intentions together in one place. The David Rockefeller–chaired report (approximately 1960) that defined a physical embodiment for such a “center,” albeit on the other side of Lower Manhattan, went so far as to further say that the existing Port of New York Authority would best be the entity to undertake and operate such a “center.” That recommendation was based on acknowledging the chartered purpose of the agency. Any “world trade center” based in the New York metropolitan region was (and is), by definition, inextricably linked to the region’s trade, commerce, and economy. Any “center,” without question, would have to somehow involve the one regional agency established and chartered specifically to address those topics. Whether the actual WTC that evolved matched what was intended—a “center” to foster world trade—is not the issue. That is a subject for business analysts and economic philosophers, not architectural critics. Mr. Campbell’s jibe of any world trade center being associated with the New York port region and the Port Authority is absolutely historically inaccurate and, moreover, casts a slur at the region and the agency.
—Jeffrey L. Bryant, AIA
Senior Architect—Planning & Engineering Group,
Capital Programs Division,
Port Commerce Department
New York City

Towering inferior

Robert Campbell’s critique of the latest WTC proposals [February 2003, page 75] was refreshing to read. He dares to point out that the Twin Towers “were dreadful in every way.” Most critics felt so when they were new. There was a slow real estate market for the original buildings when they were built, and Campbell points out that there are 17 million square feet of office space currently vacant in Lower Manhattan. Is the only purpose of “cloning this ancient program to satisfy the developers who hold the leases … and to collect their insurance money?” Must we “take back the [tallest building] title from Kuala Lumpur”? At least the Petronas Towers are soaring and graceful like the earlier New York City skyscrapers, very different from the “self-important new constructions” being proposed.

Even Campbell does not ask the questions that are on many people’s minds: Why build another target at the site of two terrorist attacks? Who would willingly work in another such tower? Is our need to be biggest and most powerful part of the problem we have with the rest of the world?
—Henrik Bull, FAIA
San Francisco

DRAWING BY EERO SCHULTZ

Letters

A feast of houses

This month's houses are a great selection, more varied than they've sometimes been but all elegant as hell. I'm amazed that you could gather such a collection.
—John Morris Dixon, FAIA
Old Greenwich, Conn.

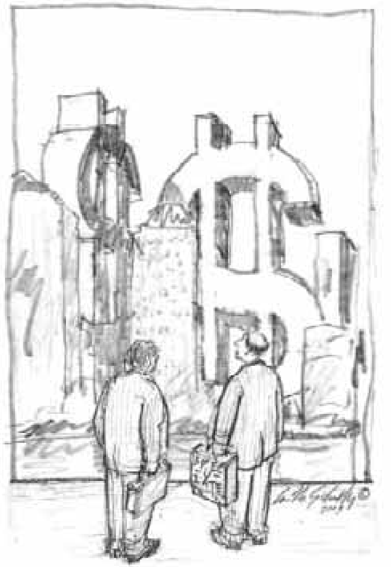
Escape from streetscape

I consider one of this year's Record Houses, the Doblin Residence, to be a prime example of noncontextual design, particularly when it is taking place in the confines of a crowded urban district.

I do not contest the beauty and functionality of the interior design, and I am sure that the owners are deriving considerable joy and comfort within. But for those who pass by on the street, is a sterile wall of metal siding, relieved only by an open joint that suggests a door may possibly exist, a thing of beauty? Does it (dare I use the word) "fit" with the rest of the urban architectural fabric surrounding it?

The magazine's spread takes great pains not to show any of the adjoining or nearby properties in the photos of the facade. Would that have pointed out the incongruity of this structure set in an urban streetscape? The surrounding buildings must have visible doors, windows, sills, cornices, parapets, trim (another forbidden word), and other features that give life and vitality to an architectural project, missing in this street facade.

I guess I am somewhat old-fashioned in my belief that an architect does not work solely for his or her immediate client but is also "working" for the community at large to see that the project does not compromise life safety, welfare, or health of the public, and is contextual with the urban landscape that it purports to be a part of. *—Marvin J. Cantor, FAIA*
Fairfax, Va.


"My wife thinks it's too abstract, but I kinda like it."

The death of PoMo

I recently read your Record Houses 2003 issue. Although not stated, it seems to be your unofficial announcement of "The Death of Postmodernism." You featured eight houses. And as Sarah Amelar states, the "motif currently finds expression most often through the visable layering of materials and textures." All of these houses succeed wonderfully and creatively in this regard.

While I admire all of these houses, I wish just one had acknowledged that there was a Greek, Roman, or Egyptian civilization rather than following early Philip Johnson. I would humbly request that you contact Messrs. Graves, Stern, and Venturi, et al., before you make the official announcement of "The Death of Postmodernism."
—Michael Shannon Bissell, AIA
Bissell Architects
Jacksonville Beach, Fla.

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Pirates beware

I am familiar with the content of Alan Joch's article about software licensing [Digital Architect, April 2003, page 191]. I was the recipient of a BSA "warning letter designed to instill fear." The fear came the same way the corner merchant would cower when visited by the local underworld enforcer, "pay me or else." Joch mentioned the word piracy when referring to the end user fo software. I would like to offer a word to describe the tactics taken by the BSA—extortion.

I understand that there are violators for licensing agreements and that piracy is a problem for the software industry. What I don't agree with are the tactics the BSA and the other enforcement agencies take to intimidate. They use the law as an anvil and the fear of retribution as the hammer to get companies to "pay" for their crime. I would be curious to know how many firms such as mine are wrongly accused and end up spending thousands to defend their businesses.

As a recipient of one of these letters, I saw no effort to determine fact. The BSA provided minimal opportunity for discussion, and they provided no evidence of fact that my office violated any license agreements. Their effort to determine merit lacked consistency and basic common sense. For example, I was accused of having 12 unlicensed copies of a software program when I had only six computers in my office. When I provided them the documentation for my software, they were confused because according to their records I had one more license than what I documented. There was no satisfying the BSA's agents. They would ask for documentation, and I would provide what they asked for. They would review and then ask for more. One software license I had dated back over 12 years. I was fortunate enough to have the original disks and CDs that came with the upgrades, but they weren't satisfied. They wanted to see the receipt for the original license. Even the IRS doesn't require a business to retain receipts for that length of time.

I was fortunate; the BSA's agents backed off after two years of harassment. I don't know if I provided them resistance they didn't count on or if they finally determined I wasn't going to roll over and pay them the money they were trying to extort. In a court of law you are confronted by your accuser and it is their burden to provide evidence to support their claim. In my dealings with the BSA, I was not provided either courtesy.

As an interesting aside, I am aware of a situation where a threatening letter was sent to a small-town business. It seems they had reliable information that this business had violated several software license agreements. What they failed to find in their merit review was that the most sophisticated electronic piece of equipment used by the business was an adding machine and a 1960s vintage cash register.

—Harlan R. Faust
Omaha

Corrections

In April's Record Houses, credits for landscape for the Taghkanic House by Tom Phifer should have gone to The Office of Dan Kiley, with landscape designer Peter Morrow Meyer and project landscape architect Nanda Patel. In the March article on green roofs [page 149], photo credit for the Chiropractic Health Center should be given to Charlie Miller, Roofscapes. In the March Building Types Study about the Camino Nuevo School [page 144], photo credit should have gone to Grant Mudford.

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Daily Headlines

Get the latest scoop from the world of architecture.

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Expanded Building Type Study

Drink Up! This month, our BTS section features eight wineries not featured in the magazine, with photos, drawings, descriptions, plans and listings of the products and people behind the projects.

Project Portfolio

Want to know more about the people and products involved in Simmons Hall/MIT designed by Steven Holl Architects or any of the other projects featured this month? Go online to find out more with links, contact information and listings of all this month's featured projects.

AIA Honor Awards

And the award goes to. Get a complete listing of the winners and see a selection of photos of the winning projects.

Photograph © Elliott Kaufman

Record Lighting

Light This Way! *Record* features links to the people and products behind this month's *Record Lighting* with a special multi-media presentation on the Met Life Tower.

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From the Field

China: Our Editor-In-Chief Robert Ivy, FAIA, writes about his recent trip to China–with insights into the design and construction market and more.

World Trade Center

Rebuilding News. Get the latest updated coverage on the rebuilding process with news and insight.

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Record News

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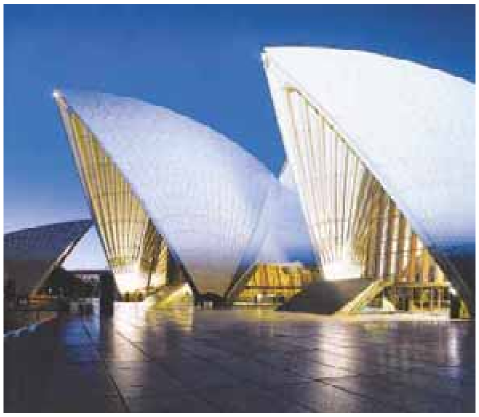
Toronto's Union Station redo p. 46
AIA's Top Ten Green Projects p. 54

Denmark's Jorn Utzon wins 2003 Pritzker Prize



Jorn Utzon (below) designed (clockwise from above) the Education Centre Prototype House in Herning, Denmark (1967); Sydney Opera House (1957–73); and Kuwait National Assembly (1972–82).

PHOTOGRAPHY: © (CLOCKWISE FROM TOP) BENT RYBERG/PLANET FOTO; DAVID MESSENT; HANS MUNK HANSEN; PORTRAIT COURESY UTZON ARCHITECTS

Jorn Utzon, best known as the architect who designed the Sydney Opera House, has been named the recipient of the 2003 Pritzker Architecture Prize, considered the world's highest honor for a living architect. The 85-year-old Danish architect will be honored in a May 20 ceremony at the Royal Academy of Fine Arts in Madrid.

Most of Utzon's projects have been completed in his native Denmark, but it's the Sydney Opera House, an iconic building of curving roof forms, that catapulted his career. Construction began in 1959 and was not completed until 1973, and Utzon had bitter arguments with Australian officials regarding cost and schedule issues.

Pritzker Prize juror Frank Gehry, FAIA, a 1989 winner, said, "Utzon made a building [the Sydney Opera House] well ahead of its time, far ahead of available technology, and he persevered through extraordinary malicious publicity and negative criticism to build a building that changed the image of an entire country. It was the first time in our lifetime that an epic piece of architecture gained such universal presence."

Pritzker Prize jury chairman, Lord Rothschild, said, "Jorn Utzon created one of the great iconic buildings of the 20th century, an image of great beauty known throughout the world. In addition to this masterpiece, he has worked throughout his life fastidiously, brilliantly, quietly, and with never a false or jarring note. He is therefore a most distinguished recipient of the Pritzker Prize."

Utzon was commissioned in 1972 to design the Kuwait National Assembly, which was completed in 1982. The Kuwait building features an expressive concave roof form. His other projects include the Fredensborg Housing Estate (1959–62), the Kingo Housing Estate (1956–58), Bagsvaerd Church (1973–76), and the Skagen Nature Center (2001), all in Denmark.

Utzon, who lives in a house he designed on the Spanish island of Majorca, is in poor health. His sons, Jan, 58, and Kim, 46, continue the practice of Utzon Architects in Haarby, Denmark. Jan will accept the award, which includes a bronze medallion and a $100,000 grant, on his father's behalf.

The 2003 Pritzker Architecture Prize jury included Lord Rothschild, Gehry, Ada Louise Huxtable, Carlos Jimenez, Jorge Silvetti, Giovanni Agnelli (who died in January), and executive director Bill Lacy.

John E. Czarnecki, Assoc. AIA

PRITZKER PRIZE LAUREATES

1979	**Philip Johnson** United States
1980	**Luis Barragán** Mexico
1981	**James Stirling** Great Britain
1982	**Kevin Roche** United States
1983	**I.M. Pei** United States
1984	**Richard Meier** United States
1985	**Hans Hollein** Austria
1986	**Gottfried Boehm** Germany
1987	**Kenzo Tange** Japan
1988	**Gordon Bunshaft** United States
	Oscar Niemeyer Brazil
1989	**Frank O. Gehry** United States
1990	**Aldo Rossi** Italy
1991	**Robert Venturi** United States
1992	**Alvaro Siza** Portugal
1993	**Fumihiko Maki** Japan
1994	**Christian de Portzamparc** France
1995	**Tadao Ando** Japan
1996	**Rafael Moneo** Spain
1997	**Sverre Fehn** Norway
1998	**Renzo Piano** Italy
1999	**Sir Norman Foster** Great Britain
2000	**Rem Koolhaas** The Netherlands
2001	**Jacques Herzog and Pierre de Meuron** Switzerland
2002	**Glenn Murcutt** Australia
2003	**Jorn Utzon** Denmark

REBUILDING LOWER MANHATTAN

OFF THE RECORD

A $36 million portion of President Bush's $74.7 billion supplemental budget request for the war with Iraq was earmarked for a new U.S. embassy in Baghdad.

After a number of false starts, construction began in early April on the Holocaust Memorial in Berlin, designed by Peter Eisenman. It is likely to be completed by May 8, 2005, the 60th anniversary of the Nazi defeat. Eisenman, Cornell class of 1955, was given Cornell's Committee on the Arts and Council for the Arts Distinguished Alumni Artist Award for 2002–03.

The New World Symphony of Miami Beach has hired Frank Gehry, FAIA, to design a performance, rehearsal, and teaching facility. The New World Symphony is the only postgraduate training orchestra in the U.S.

Minneapolis-based Parker Durrant International has designed a 3-million-square-foot retail and entertainment complex for Dalian, China. Ground breaking was in March, and construction will be completed by 2006.

Abraham Zabludovsky, a Mexican Modernist architect, died on April 9 at age 78. He was perhaps best known for his design of the Rufino Tamayo Museum and his renovation of the National Auditorium in Mexico City.

Maya Lin will be honored with Denmark's Finn Juhl Architecture Award in a ceremony on May 6 at the Danish Museum of Decorative Arts in Copenhagen.

Zaha Hadid, Frank Gehry, and Mack Scogin/Merrill Elam Architects are on the shortlist to design the University of Connecticut's new $30 million School of Fine Arts building, which will include an opera hall, recital hall, concert hall, media resource center, and studio. The winner will be named this summer.

Politics and legalities now focus for WTC

At the February announcement of Libeskind's master plan, Libeskind (center) describes the model to Mayor Bloomberg (left) and Governor Pataki (right).

In the two months following the selection of the master plan by Daniel Libeskind for the World Trade Center (WTC) site, the political and legal maneuverings have been grabbing headlines. At the end of March, it appeared that a potential land swap involving the city and the Port Authority of New York and New Jersey was imminent, but the holder of the retail lease, Westfield America, is not pleased with Libeskind's design.

The Port Authority has made an offer in which the City of New York would acquire both the WTC site from the Port Authority and cash in the range of $500 to $700 million in exchange for LaGuardia and Kennedy Airports, which are leased by the Port Authority. At issue is the city's desire to maintain some control over the airports. The Port Authority is jointly controlled by New Jersey Governor James McGreevey and New York Governor George Pataki. According to *The New York Observer*, McGreevey has voiced skepticism regarding the potential swap, but Pataki is said to support a deal. Negotiations continued at press time, and a decision is likely by July, at the latest.

Meanwhile, Westfield America, the American subsidiary of the Australia-based retail development giant that holds the lease for the retail component of the site, is concerned that its interests are ignored in Libeskind's plan. Westfield sent a letter on March 14 to Joseph Seymour, executive director of the Port Authority, which stated, in part: "We do not believe that the Port Authority or the [Lower Manhattan Development Corporation] has given proper consideration to our best professional judgment, much less to our rights or commercial interests, or to any additional alternatives that would safeguard our interests."

The *Observer* reported on April 14 that both Libeskind and the Think team presented to Westfield America representatives in February, but "one Westfield source said that the company had felt 'lectured at' by Libeskind." *J.E.C.*

Registration started and jury named for WTC memorial competition

Registration began April 28 for the competition to design a memorial at the World Trade Center site, and all entrants must register by May 29 to submit a design. A winning proposal will be selected in fall 2003. Visit www.renewnyc.com for more information.

The 14 jurors for the memorial competition are architect and artist Maya Lin, who designed the Vietnam Veterans Memorial in Washington, D.C.; Mexico City–based architect Enrique Norten, who won a competition to design a new arts library in Brooklyn, New York; New York City– and Cambridge, Massachusetts–based landscape architect Michael Van Valkenburgh; James Young, the chairman of the Department of Judaic and Near Eastern Studies at the University of Massachusetts, Amherst, and author of *At Memory's Edge: After-Images of the Holocaust in Contemporary Art and Architecture*; Paula Grant Berry, whose husband, David Berry, died in the South Tower of the World Trade Center; Deputy Mayor for Administration Patricia Harris, who advises Mayor Bloomberg on arts and cultural issues; Susan Freedman, president of the Public Art Fund; Michael McKeon, a managing director of Mercury Public Affairs, a political consulting firm, and a former director of communications for Governor Pataki; Lowery Stokes Sims, the executive director of the Studio Museum in Harlem; David Rockefeller, the former head of Chase Manhattan and a leading force in the original development of the World Trade Center; Nancy Rose, who has a private arts consulting firm and has served as an adviser and panelist for the New York State Council on the Arts; Vartan Gregorian, the president of the Carnegie Corporation of New York and former president of Brown University; and Julie Menin, founder of the Wall Street Rising organization. *J.E.C.*

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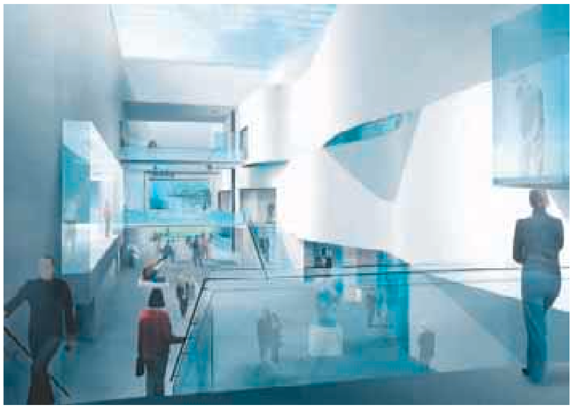
Mather design unveiled for Virginia Museum of Fine Arts



Mather's design includes a sculptural, expansive interior.

The Virginia Museum of Fine Arts (VMFA) will begin construction in 2004 on a $100 million addition designed by Rick Mather. The museum, located in Richmond, selected Mather from a shortlist that included Smith-Miller Hawkinson, Hardy Holzman Pfeiffer, and Polshek Partnership. This is the first major U.S. commission for Mather, an American architect practicing in London.

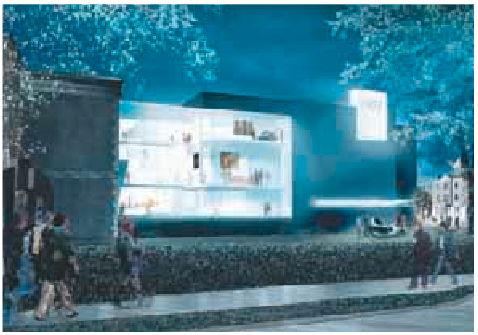
Mather's 100,000-square-foot stone-and-glass extension, which will open in 2007, breaks with the museum's revivalist roots. The VMFA's original neo-Georgian building, which opened in 1936, was designed by the Norfolk, Virginia, firm Peebles and Ferguson. The VMFA has added to that structure four times, most recently with a 1985 addition by Hardy Holzman Pfeiffer.

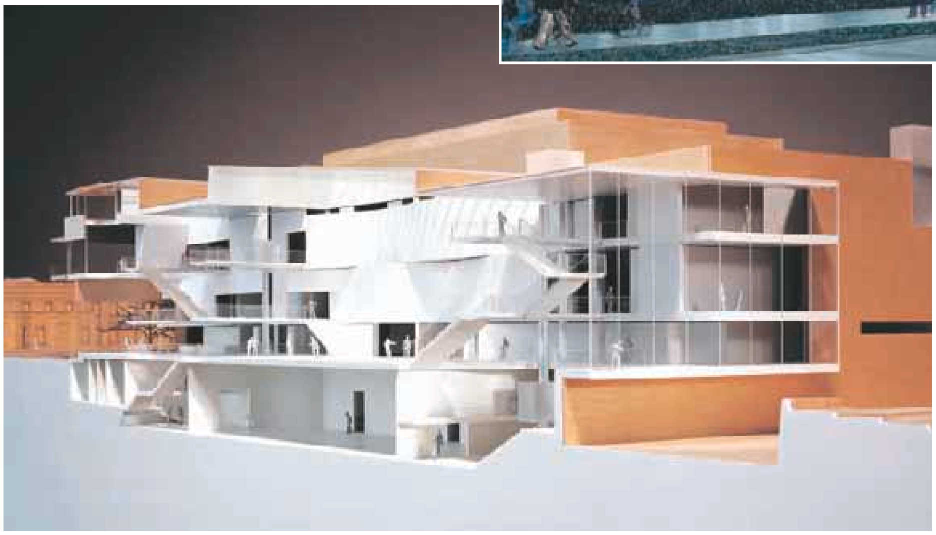
Mather's design remedies circulation problems with the existing complex. The Peebles and Ferguson main entrance, for example, is on the museum's eastern elevation and faces The Boulevard, one of Richmond's main thoroughfares. As the museum expanded, the entry was shuttered in favor of direct access from the parking lot. The forthcoming extension reorients the museum entrance to The Boulevard and includes the "East Window," which looks into a triple-height atrium. Mather says the glazed surface will "engage the city—it will make the buildings seem like one thing, and make it easy to see the whole museum."

Existing buildings will be retrofitted with green features, such as a displacement ventilation system. Mather claims the complex will be 80 percent more energy efficient than it is today. The VMFA will seek LEED certification.

A new north-facing entry plaza will include a tall glazed volume with liquid-crystal technology on the surface to display video.

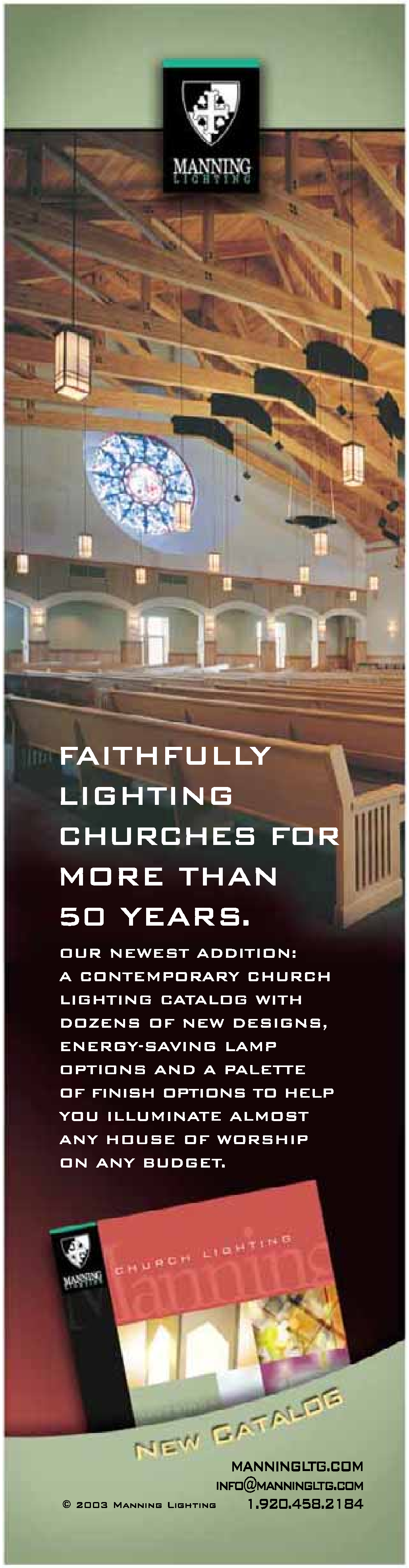
Mather has incorporated with local firm SMBW to implement the design. Olin Partnership is the landscape architect for the museum's sculpture garden, part of which will also be a green roof for a new parking deck. *David Sokol*





The addition (right) is shown in section (below). It is scheduled to open in 2007.

IMAGES: COURTESY VIRGINIA MUSEUM OF FINE ARTS



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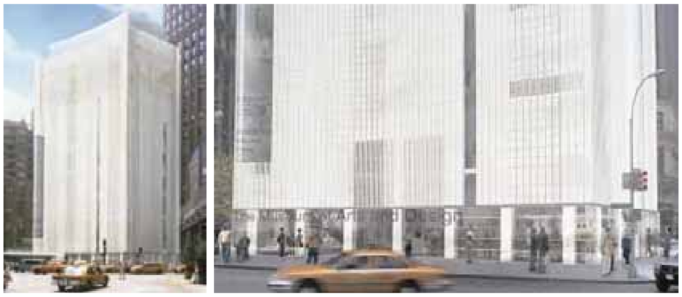
Cloepfil design for 2 Columbus Circle draws preservationist ire

Although 2 Columbus Circle—a 10-story gallery designed by Edward Durell Stone in 1964—is not an official landmark, New York City preservationists are preparing to fight the $50 million redesign of the building by Brad Cloepfil of Allied Works for the new home of the Museum of Contemporary Art and Design.

The redesign replaces the idiosyncratic building's crumbling white marble cladding with, according to Cloepfil, "somewhat diaphanous" terra-cotta panels punctuated by vertical glazed openings. He says the strategy increases the museum's visibility by "giving an idea of what's happening inside," and allows daylight into the galleries.


Terra-cotta panels may replace the building's white marble exterior.

But the new exterior spells the end of the existing portholes and sidewalk arcade of lollipop columns. To preservationists, Cloepfil's "design treats these remarkable elements as though they were expendable, if not contemptible," Kate Wood, executive director of Landmark West, wrote in a letter to *The New York Times*.

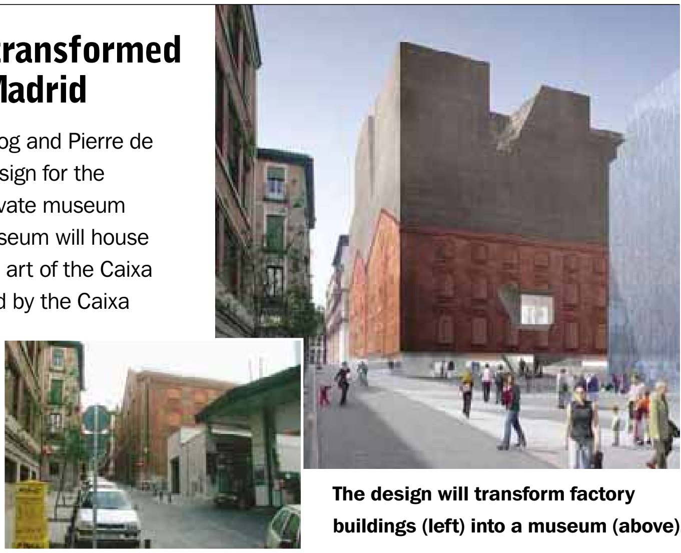
Cloepfil responds: "People have definite associations with the decoration, but I also think the building's singularity, monumentality—the color of it, even—are just as evocative."

The scheme also redefines the interior. Full floors will be constructed in lieu of the original half-story intervals. Glass columns, with artwork inside, will run vertically through the 54,000-square-foot space.

The City Planning Commission must approve Cloepfil's design before the museum can purchase the building and reconstruction can begin. *D.S.*

Factory buildings transformed into CaixaForum-Madrid

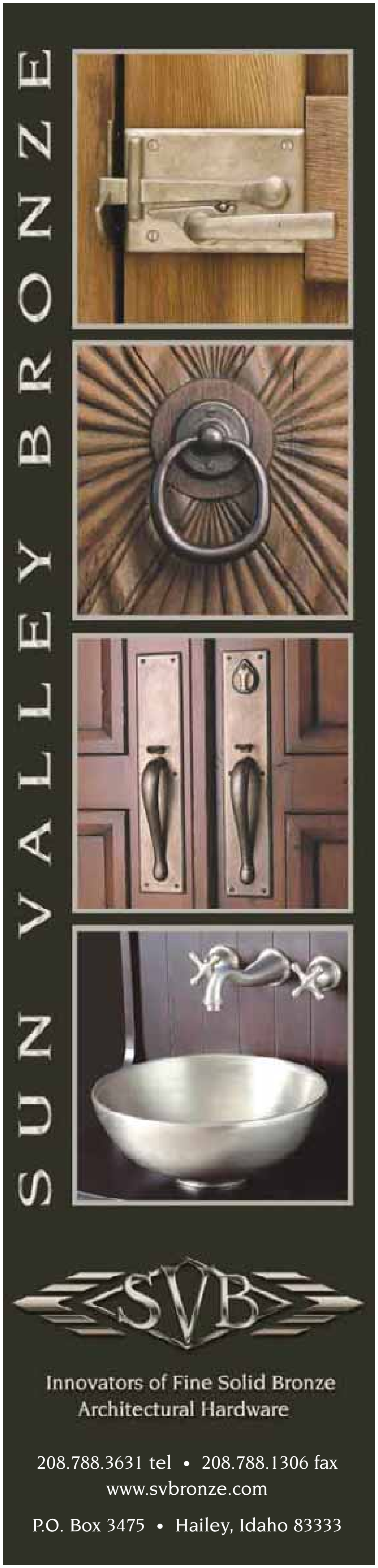
Swiss architects Jacques Herzog and Pierre de Meuron have unveiled their design for the CaixaForum-Madrid, a new private museum in the Spanish capital. The museum will house the collection of contemporary art of the Caixa Foundation, which is supported by the Caixa Savings Bank (a sister institution opened in Barcelona last year, in a factory refurbished by Arata Isozaki and local architect Roberto Luna). A pair of early-20th-century factory buildings a few steps from the Paseo del Prado are presently on the site. The museum will be connected to the Paseo by a small plaza currently occupied by a gas station (pictured, left).


The design will transform factory buildings (left) into a museum (above).

Herzog and de Meuron's plans call for a radical restructuring of the original brick buildings. The architects suggest removing the granite bases and leaving the brick shells, creating a covered entry plaza that occupies the entire site. The levitation of the buildings, they explain, resolves "problems such as the narrowness of the surrounding streets, the placement of the main entrance, and the architectural identity of the institution in a single sculptural gesture."

An auditorium and the museum's technical and service spaces are located below the plaza, with the exhibition galleries and other public facilities above. A metal-clad superstructure, which will rise to a series of inclined planes, will be above the original brick walls. The $25 million museum will be completed in 2005. *David Cohn*

IMAGES: COURTESY DBOXSTUDIO (TOP TWO); HERZOG AND DE MEURON (BOTTOM TWO)



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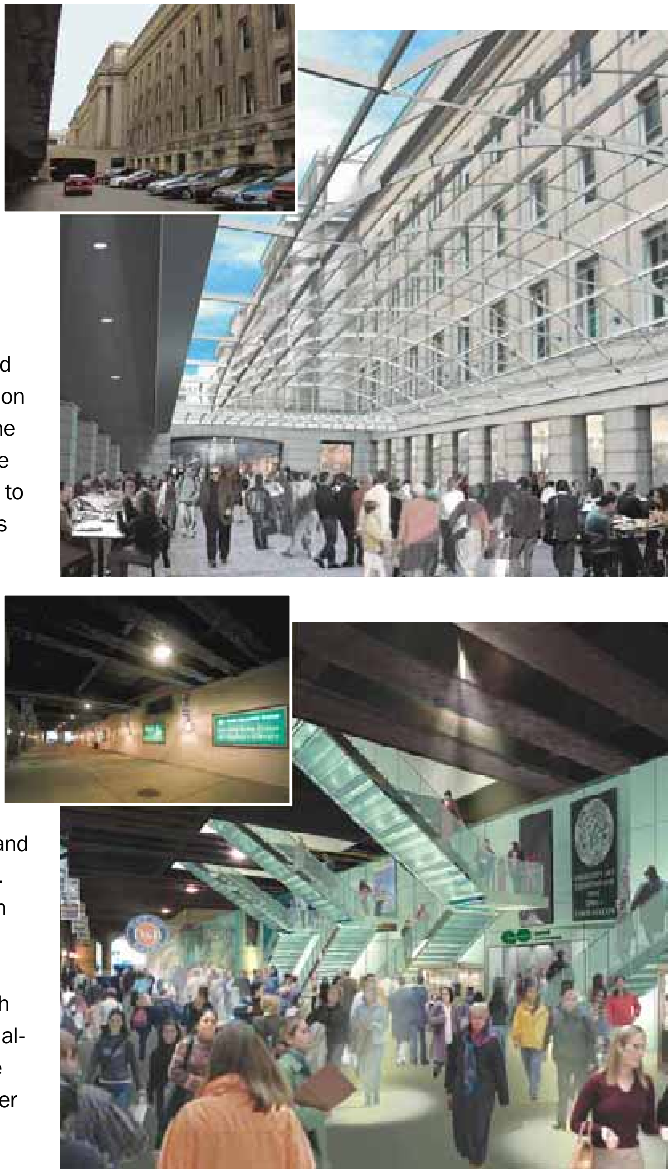
Toronto's Union Station to undergo restoration and renovation

Downtown Toronto's grand old Union Station is soon to be restored. But earlier development plans for a boutique hotel and office space on the site are "not part of the discussions with the city at the moment," Cubie Dawson, the codirector of the project at Jones Lange LaSalle in New York, said. Zeidler Grinnell Partnership Architects of Toronto has designed the $120 million historic restoration and renovation, which includes the addition of nearly 160,000 square feet of retail space. Construction, to be funded by the private sector, is expected to begin in early 2004.

The project is being developed by the Union Pearson Group, a consortium of U.S. and Canadian firms that includes Olympia & York and Jones Lange LaSalle, veterans of the restoration and redevelopment of both Grand Central Station in New York City and Union Station in Washington, D.C. Union Pearson Group was chosen by the City of Toronto in August 2002 following a controversial closed-selection process, in which names of the firms on the two finalist teams were not disclosed. The losing team of New York firm Beyer Blinder Belle, architects of New York's Grand Central restoration, and Rem Koolhaas and his Office for Metropolitan Architecture (OMA), envisioned a large civic square adjoining the station.



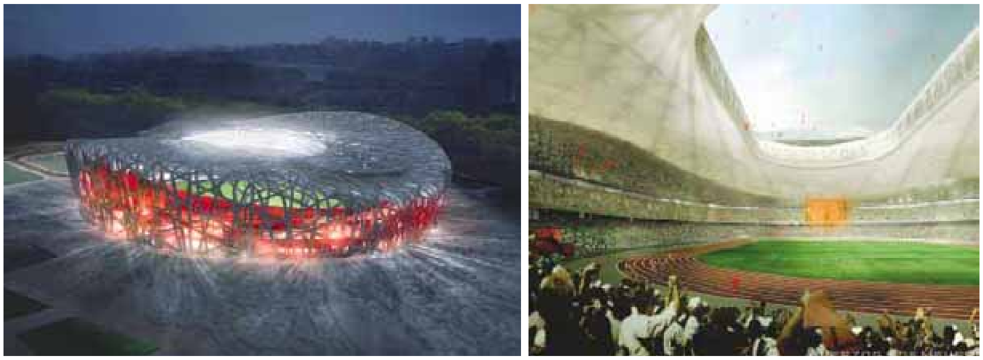
Zeidler Grinnell will reconfigure passageways (above). The "moats" (top) around Toronto's Union Station will have glass roofs.

IMAGES: © UNION PEARSON GROUP

The resulting "harangue" related to the selection process—as Eb Zeidler, senior partner at Zeidler Grinnell, put it—has delayed the ratification of the city's master agreement with Union Pearson. Initial plans called for the development of station's air rights with a boutique hotel and office space designed by Helmut Jahn of Murphy/Jahn Architects. Jahn's firm no longer has a role in the project.

Zeidler's design will direct more traffic through the station's refurbished Great Hall, and will enclose and beautify the "moats" surrounding the station. Zeidler stressed the limited focus of the development plan. "Our task is basically restricted to the rebuilding of the station's head house," he said, adding, "the city has taken away any ability to increase the density."

Dawson at Jones Lang LaSalle said that the design is "sensitive to the transportation needs of the project," and includes a "merchandising plan that's tailored to Torontonians," particularly the 100,000 commuters who pass through the station each day. "The entire project will be a unique complement to a lot of the attractions in that area of Toronto," Dawson added. *Andrew Blum*



The stadium has an oval bowl (above right) and a structure similar to interwoven twigs (above left).

Herzog and de Meuron win Beijing Olympic stadium project

Swiss architects Jacques Herzog and Pierre de Meuron have won a competition to design the Olympic stadium for the 2008 summer games in Beijing. Herzog and de Meuron was one of 14 invited firms in the competition.

The 100,000-seat stadium, with three tiers and a sliding roof, will host the Olympic opening and closing ceremonies, as well as track and field and other athletic events. Herzog and de Meuron were inspired by the interwoven twigs of a bird's nest for the exterior structure. The gaps in the structure will be filled with inflated cushions, according to the architects. Herzog says, "We wanted to get away from the usual technocratic stadiums with their architecture dominated by spans and digital screens. (The design) is simple and almost archaically direct in spatial impact."

Harry Gugger, the partner in charge for the stadium project, told Swissinfo, "I think we sort of reinvented stadium architecture. You can't change the basic form of a stadium, but you can add a new architectural quality."

Herzog and de Meuron consulted with Chinese artist and curator Weiwei Ai and the China Architecture Design and Research Group for this, the firm's first project in China. The firm has also recently won the commission for a stadium in Basel, Switzerland—St. Jakob's Park stadium—for the Swiss soccer team FC Basel and is designing the stadium for the 2006 World Cup soccer games in Munich. *J.E.C.*

Scholars discuss Modernism and the Middle East

A group of scholars gathered in early April at the Yale School of Architecture for a symposium, "Local Sites of Global Practice: Modernism and the Middle East." As architects and historians discussed the charged history of development in the region, United States troops were nearing Baghdad.

The war that has dominated the headlines was too immediate for analysis, and most talks focused on history. Topics ranged from the Italian colonization of Libya in the 1930s to the barracklike refugee settlements constructed in the late '40s in Israel, from Frank Lloyd Wright's unbuilt projects for Baghdad in the 1950s to the Postmodern towers that transformed Dubai in the '80s. Certain themes were persistent, such as the uneasy relationship between modernity and tradition, progress and preservation, global and local. Yale anthropologist Arjun Appadurai argued that these categories limit understanding—that local and global "cannot be dichotomized," for each influences the other in complex ways. Still, for Western architects, certain difficult realities were hard to avoid. As Hasan-Uddin Khan, a professor of architecture at Roger Williams University, in Bristol, Rhode Island, discussed "hybrid architecture" in the Gulf States, it became clear that much of the work by American and European architects—hotels, airports, and ministries with designs whose forms are meant to suggest Arab dhows or Bedouin tents—now symbolizes what many in the region see as hubris, if not oppression.

Yet architecture is inevitably a key component in nation building. Hashim Sarkis, professor of architecture at Harvard, showed projects—housing, an agricultural center, and a school—commissioned by nongovernmental organizations (NGOs) as part of Lebanon's post–civil war rebuilding. Sarkis says, "NGOs fill a need throughout the developing world." ***Nancy Levinson***

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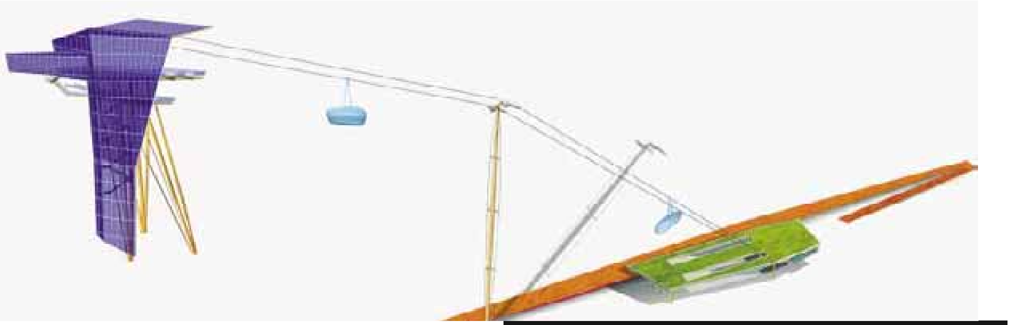
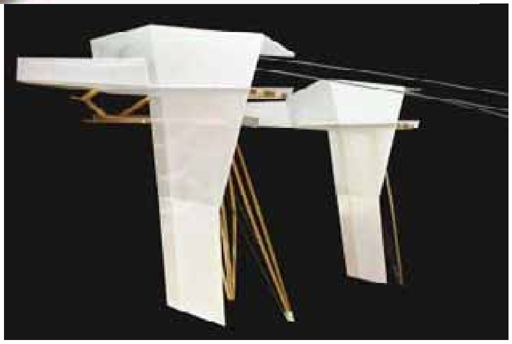


L.A. firm wins competition for Portland aerial tram

The Los Angeles and Zurich–based firm Angelíl/Graham/Pfenninger/Scholl Architecture has won an international design competition for an aerial tram in Portland, Oregon.

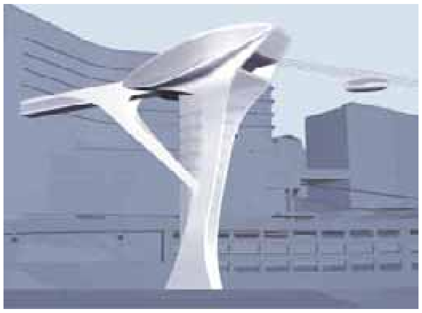
Budgeted at approximately $15 million, the tram will connect Oregon Health Sciences University, which lies atop Marquam Hill overlooking downtown Portland, with the newly rezoned South Waterfront neighborhood immediately below, which will be transformed in upcoming years from shipyards to biomedical research facilities and mixed-use development. Only the second aerial tram in the United States (the other stretches over the East River in New York City), the project has been subject to a pitched battle between the city, which favors the plan, and residents of an historic neighborhood over which the tram will pass, who oppose it.

This is the first major design competition Portland has hosted since Michael Graves won the Portland Public Service Building commission more than 20 years ago. Managed by Reed Kroloff for Portland Aerial Transportation, the competition saw Angelíl/Graham/Pfenninger/Scholl chosen over three other finalists: SHoP/Sharples Holden Pasquarelli of New York, UN Studio of Amsterdam, and the engineering firm Guy Nordenson and Associates of New York. According to juror Diana Goldschmidt, the proposal by Angelíl/Graham/Pfenninger/Scholl architects was chosen, in part, for “the way they think and approach problem solving, and how they apply that process to a controversial project.”



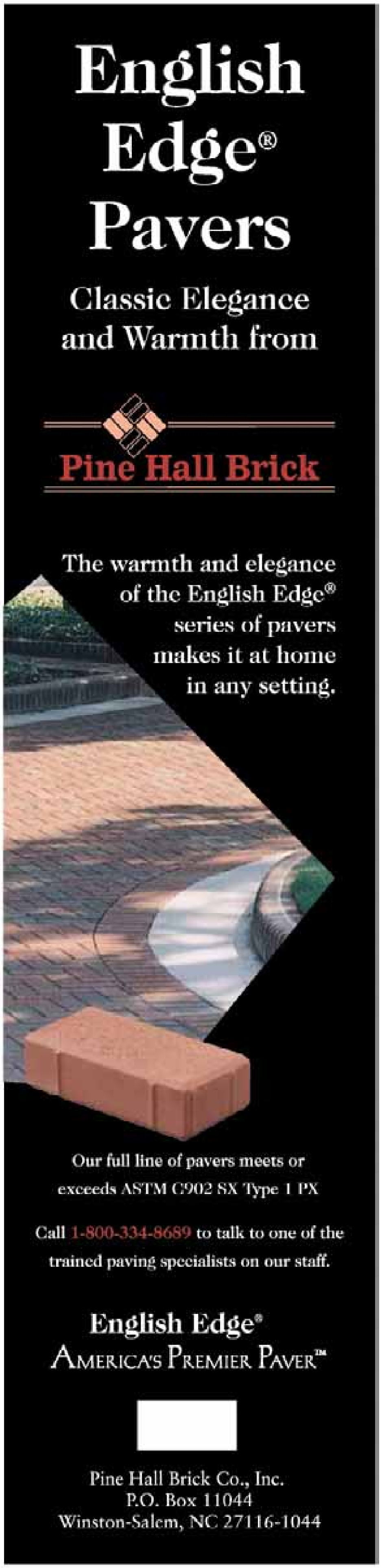
Angelíl/Graham/Pfenninger/Scholl’s proposal has a sculptural upper tram station (above).

In presenting their design concepts to the jury, husband-and-wife architects Marc Angelíl and Sarah Graham likened the pieces of the tram to various symbolic imagery: The upper tram station extends from its hilly foundation like a ballet dancer; a Minimalist-looking pedestrian bridge was compared to a rubber band stretched over a stone; and the tram cars will be transparent—like soap bubbles. The lower station contains a combination platform and roof covered in grass, so that from above, the cars will seem to disappear into the earth. *Brian Libby*



Finalist tram station designs by (clockwise from above left) SHoP, Guy Nordenson and Associates, and UN Studio.

IMAGES: COURTESY PORTLAND AERIAL TRANSPORTATION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2002 GSA Design Awards honor best public architecture

The General Services Administration (GSA) has announced the recipients of the 2002 GSA Design Awards for outstanding public architecture. The National Building Museum in Washington, D.C., is exhibiting the winning projects through October 19. Below are the winners in 11 of the 17 categories.

Poste Restaurant, Hotel Monaco.

Architecture
Harvey W. Wiley Federal Building, Center for Food Safety and Nutrition, College Park, Maryland: Kallmann McKinnell & Wood Architects; **Pacific Highway U.S. Port of Entry**, Blaine, Washington: Thomas Hacker Architects.

On the Boards
United States Courthouse, Eugene, Oregon: Morphosis; **Census Bureau Headquarters**, Suitland, Maryland: Skidmore, Owings & Merrill; **Temecula Border Patrol Station**, Murietta, California: Garrison Architects; **National Oceanic and Atmospheric Administration Satellite Operations Facility**, Suitland, Maryland: Morphosis.

Art Conservation
State Pride and ***Justice***, by Leo Friedlander, Nashville: Catherine S. Myers of Art Conservation Associates.

Engineering/Technology
Wallace F. Bennett Federal Building, Salt Lake City: Reaveley Engineers & Associates.

Workplace Environment
Office of the Chief Architect, GSA, Washington, D.C.: Lehman-Smith McLeish.

First Impressions
James A. Byrne U.S. Courthouse, Philadelphia: MGA Partners; **Martinsburg Federal Building and U.S. Courthouse**, Martinsburg, West Virginia: Lehman-Smith McLeish.

Graphic Design
GSA Design Excellence Monograph Series, Washington, D.C.: Chermayeff & Geismar; **GSA Historic Building Poster Series**, Washington, D.C.: Cox & Associates; **Jacob Weinberger U.S. Courthouse Booklet**, San Diego: Rightside Imaging; **Sandra Day O'Connor U.S. Courthouse Tenant Guide**, Phoenix: Ray Vote Graphics.

Historic Preservation, Restoration, Renovation
José V. Toledo U.S. Post Office and Courthouse, Old San Juan, Puerto Rico: Finegold Alexander + Associates; **U.S. Courthouse**, Camden, New Jersey: MGA Partners, Art Conservation Associates; **Ariel Rios Federal Building Facade Completion**, Washington, D.C.: Karn Charuhas Chapman & Twohey; **Harry S. Truman Presidential Library and Museum**, Independence, Missouri: Gould Evans.

NOAA Satellite Operations Facility, by Morphosis.

Sustainability
Environmental Protection Agency Research and Administration Facility, Research Triangle Park, North Carolina: Hellmuth, Obata + Kassabaum.

Interior Design
Poste Restaurant, Hotel Monaco, Washington, D.C.: Adamstein & Demetriou Architects.

Construction Excellence
Wallace F. Bennett Federal Building, Salt Lake City: Big-D Construction Corporation; **Ariel Rios Federal Building Modernization—Phase II**, Washington, D.C.: Grunley Construction Company; **James H. Quillen U.S. Courthouse**, Greeneville, Tennessee: Caddell Construction Company.
Kevin Lerner

The U.S. Courthouse in Eugene, Oregon, by Morphosis.

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The AIA Top 10 Green Projects announced on Earth Day include (from top) Wine Creek Road Residence; Argonne Child Development Center; Cusano Environmental Education Center; and Herman Miller MarketPlace.

PHOTOGRAPHY: © (FROM TOP) J.D. PETERSON; DAVID BUSHNELL; BARRY HALKIN; HEDRICH-BLESSING

California dominates 2003 AIA Top 10 Green Projects

A housing complex, an education center, and a forensics laboratory were among the 2003 Top 10 Green Projects announced by the AIA's Committee on the Environment (COTE), in partnership with the U.S. Department of Energy, on Earth Day, April 22.

This is the sixth year of the Top 10 program. Only one of the 10 winners is located outside the United States: the **Steinhude Sea Recreation Facility**, in Germany, by Randall Stout Architects of California. For the first time, every winning U.S. project is located in the same state as the architects that designed it. Five are in California: the **Wine Creek Road Residence** in Healdsburg, by Siegal & Strain Architects; the **Argonne Child Development Center** in San Francisco, by 450 Architects; the **Hidden Villa Hostel & Summer Camp** in Los Altos Hills, by Arkin Tilt Architects; **Colorado Court** in Santa Monica, by Pugh Scarpa Kodama; and HOK's **San Mateo County Forensics Laboratory** in Redwood City. The remaining four winners are the **Cusano Environmental Education Center** in Philadelphia, by Susan Maxman & Partners, Architects; the **Chicago Center for Green Technology**, by Farr Associates Architecture and Urban Design; the **Herman Miller MarketPlace** in Zeeland, Michigan, by Integrated Architecture; and **Fisher Pavilion** in Seattle, by The Miller/Hull Partnership, the 2003 AIA Firm of the Year.

The jury for this year's awards included Carol Ross Barney, FAIA, Peter Bohlin, FAIA, Doug Kelbaugh, FAIA, Jacqueline Rose, AIA, and Drury Crawley, AIA. Jurors did not know who designed the projects until the winners were chosen, but Kelbaugh, dean of the Taubman College of Architecture and Urban Planning at the University of Michigan, told RECORD he was not surprised to find local firms leading the pack. "Environmentally sensitive design is very site-specific," he said. "It requires intimate knowledge of the local climate and building practices."

Building performance data was required for the first time this year, and the scope of the awards was expanded to include urban projects as well as buildings.

The COTE Top 10 will be on display at the AIA national convention in San Diego, May 8–10. *Deborah Snoonian, P.E.*

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News Briefs

Chipperfield to design Berlin gallery

London's David Chipperfield Architects has been selected to design the Berlin gallery building Hinter dem Giesshaus 1 (pictured, right). The invited competition included finalists Frank Gehry, Peter Zumthor, Hans Kollhoff, and Ron Radziner.

The gallery will be on a city street facing Berlin's Museum Island and, according to a statement by Chipperfield, the new building will frame Museum Island and be designed so that it "is not confused with the buildings it overlooks." The exterior will be composed of Saxon sandstone block, which, Chipperfield says, "achieves a calm solidity." Moreover, a series of "monumental openings reflect the urban scale as well as the order of the neighboring buildings." Inside, the loftlike space will include exposed concrete ceilings and clerestory glazing.

Gallery (center) will have "monumental" windows.

Moynihan, former senator and design advocate, dies Daniel Patrick Moynihan, the former four-term senator from New York and an advocate of architecture preservation, urban development, and mass transit, died on March 26 of complications from surgery earlier that month. He was 76.

Daniel P. Moynihan

Moynihan was instrumental in the redevelopment of Pennsylvania Avenue in Washington, D.C., a project first conceived during the Kennedy administration. He helped shape the Pennsylvania Avenue Development Corporation in the early 1970s, and his efforts led to the construction of new buildings along the boulevard as well as the restoration of structures. He also advocated the preservation of buildings such as New York City's Customs House and the former main post office in Washington, D.C. Recently, Moynihan had worked to ensure the conversion of New York City's main post office into a new home for Pennsylvania Station. The new station will be across the street from the site of the McKim, Mead and White Pennsylvania Station, the destruction of which in the early 1960s helped to spur the historic preservation movement. The new station will be named after Moynihan. *K.L.*

KPMB to design new home for Toronto film fest In April, the Toronto International Film Festival Group (TIFFG) announced its plans to construct a flagship Festival Centre in downtown Toronto that would consolidate all of TIFFG's programs under one roof. The building will house offices, exhibition areas, archives, and a film library. Toronto-based architecture firm Kuwabara Payne McKenna Blumberg will design the five-story building, which will include a condominium tower. KPMB was selected from among finalists Kohn Pedersen Fox and Kohn Shnier.

D.C. Convention Center opens

The nation's most expensive convention center and Washington, D.C.'s largest building, the Washington Convention Center, opened on March 29. The 2.3-million-square-foot facility cost $834 million to construct, $120 million more than the price estimated at its 1998 ground breaking.

The limestone-and-glass building was designed by Thompson, Ventulett, Stainback and Associates with Mariani Architects Engineers and Devrouax & Purnell. It covers six square blocks in the city's Shaw neighborhood. To fit the building into the area, the designers placed 40 percent of the it below grade and split the aboveground portion into three sections. Segmentation of the building's masses also preserves the city grid of L'Enfant's master plan.

The city's 800,000-square-foot convention center, completed in 1983, will be demolished. City officials are currently considering development options for that 10-acre site.

The limestone-and-glass convention center occupies six square blocks.

PHOTOGRAPHY: COURTESY DAVID CHIPPERFIELD ARCHITECTS (TOP); © AP PHOTO/RICHARD DREW (MIDDLE); WASHINGTON CONVENTION CENTER (BOTTOM LEFT); THOMPSON, VENTULETT, STAINBACK AND ASSOCIATES (BOTTOM RIGHT)

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Cincinnati Reds open ballpark The Cincinnati Reds, the oldest professional baseball team, opened its new ballpark, Great American Ball Park, on March 31. Designed by HOK Sport+Venue+Event with GBBN Architects, the new ballpark replaces Cinergy Field (formerly Riverfront Stadium), which had been home to the Reds and the football Cincinnati Bengals since 1971. The 42,263-seat ballpark is on the Ohio River, immediately adjacent to the site of Cinergy Field, which has been demolished. A nearby riverfront stadium for the Bengals—Paul Brown Stadium—has been in operation for three seasons. Great American Ball Park is an open-air ballpark with views of the river and the Kentucky shore. It is the only new major league park to open this year; ballparks in San Diego and Philadelphia will open in 2004. *J.E.C.*

GREAT AMERICAN BALL PARK

Great American Ballpark (left) opened to fanfare on March 31 (right).

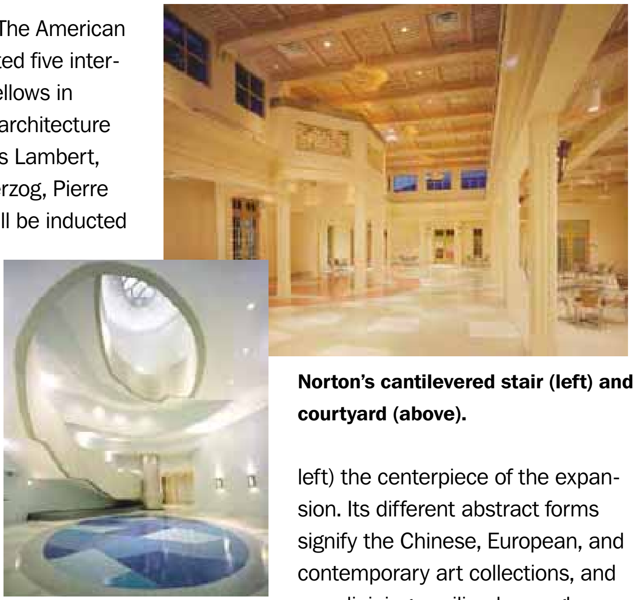
AIA names honorary fellows The American Institute of Architects (AIA) has elected five international architects to be honorary fellows in recognition of their contributions to architecture and society. The honorees are Phyllis Lambert, Jean Marie Charpentier, Jacques Herzog, Pierre de Meuron, and Il-in Hwang. They will be inducted as honorary fellows on May 9 at the Salk Institute in La Jolla, California.

Guggenheim Museum to open Brazilian satellite Despite sagging finances that forced it to temporarily shutter one Las Vegas branch and abandon plans to build a Frank Gehry–designed museum in Lower Manhattan, the Guggenheim Foundation is close to signing an agreement to open a museum in Rio de Janeiro, although an official announcement has not been made. The building, designed by Jean Nouvel, will be partially submerged in Guanabara Bay. Exterior glazing will admit natural light into galleries below the water line, and a large cylindrical volume, including an observatory gallery and restaurant, will rise above it. Construction is expected to begin this summer, with completion scheduled for late 2006.

Public money will fund the $150 million project, which Rio de Janeiro officials hope will revitalize the dock district. The city has agreed to pay the Guggenheim $25 million for the right to access all of the museum's collections for the next 50 years, according to *The Art Newspaper*. Opponents of the pending contract criticize the Guggenheim's choice of a foreign architect, as well as the city's neglect of its existing Museu do Arte Moderno.

Norton expansion opens to public The Norton Museum of Art in West Palm Beach, Florida, opened its 45,000-square-foot addition in March. Designed by Chad Floyd, FAIA, of Centerbrook Architects, the $20 million Gail and Melvin Nessel Wing includes 14 galleries, a glass-enclosed courtyard, and a three-story atrium. The state's largest museum, the building now has 122,500 total square feet.

Museum officials call the oval atrium (lower left) the centerpiece of the expansion. Its different abstract forms signify the Chinese, European, and contemporary art collections, and an adjoining pavilion has a glass ceiling commissioned from Dale Chihuly. The Norton Museum of Art's original 1941 building was designed by Marion Syms Wyeth. Centerbrook Architects was responsible for the museum's first expansion, a 77,500-square-foot project completed in January 1997. *News Briefs by David Sokol unless otherwise noted.*



Norton's cantilevered stair (left) and courtyard (above).

PHOTOGRAPHY: © JOHN CZARNECKI (TOP LEFT); AP PHOTO/TOM UHLMAN (TOP RIGHT); C.J. WALKER (BOTTOM TWO)

Dates & Events

New & Upcoming Exhibitions

Design Berlin! New Projects for a Changing City
Berlin
May 2–June 22, 2003
The Vitra Design Museum exhibition introduces the most innovative young designers and architects in Berlin with this presentation of their most important projects, including furniture, product design, and architecture. The opening of the exhibition simultaneously marks the commencement of the new festival DESIGNMAI, offering the public an unprecedented and unique range of events pertaining to design topics, and the present exhibition *Take a Seat! 200 Years of Design History from the Collection of the Vitra Design Museum*. At the Vitra Design Museum Berlin. Call 49 30 47 37 77 12 or visit www.design-museum-berlin.de.

Traces of India: Changing Views of the Monuments of a Subcontinent
Montreal
May 15–September 14, 2003
The exhibition will present more than 200 master photographs taken by travelers, military surveyors, and professional studios within the context of the British colonial era, exploring some of the greatest architectural sites of the Indian subcontinent. Along with the 19th-century photographs of historic monuments, a fascinating related selection of images from popular culture, such as postcards, posters, political ephemera, and Bollywood film clips, will be on view. At the Canadian Centre for Architecture. Call 514/939-7000 or visit www.cca.qc.ca for further information.

The HOME House Project
Winston Salem, N.C.
May 10–July 6, 2003
The multiyear HOME House Project initiative, the future of affordable housing, begins with an exhibition of more than 450 proposals from artists and architects from the U.S., the Netherlands, Spain, England, Russia, Italy, and Canada. These sustainable designs for low- and moderate-income family houses are using Habitat for Humanities basic three- and four-bedroom house as a point of departure. A building phase, which starts in North Carolina, will follow the exhibition. At the Southeastern Center for Contemporary Art. Call 336/725-1904 or visit www.seca.org.

Starting Places/Architect's Study Models
Dallas
June 13–July 13, 2003
A show of 20 exploratory artifacts by Dallas-area architects will be on view. Operating along the borderline between imagination and reality, these miniature depictions will represent a spectrum of building types and express the pleasure and importance of making things while thinking. At the McKinney Avenue Contemporary (the MAC). Call 214/953-1212 for more information.

Treasures from the Collection
New York City
October 14, 2003–April 18, 2004
The Nancy and Edwin Marks Collection Gallery will introduce two installations each year featuring a wide range of objects from all historical periods and creating a visual encyclopedia of the collections. International in scope and possessing one of the most diverse and comprehensive collections of design works in existence, the museum's holdings range from the Han Dynasty to the present and total more than 250,000 objects. Cooper-Hewitt director Paul Warwick Thompson will curate the debut exhibition, encompassing diverse styles in a stimulating juxtaposition of objects across the four principal collecting departments of the museum: Prints, Drawings, and Graphic Design; Product Design and Decorative Arts; Wall Coverings; and Textiles. At Cooper-Hewitt, National Design Museum.Call 212/849-8400 or visit www.si.edu/ndm.

Solos: SmartWrap
New York City
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pavilion by the Philadelphia architecture firm Kieran Timberlake Associates in the Arthur Ross Terrace and Garden. SmartWrap is a concept for a customizable building material that would incorporate a building's facade as well as emerging technologies in heating, lighting, and solar energy. The model, measuring 16 feet square by 20 feet high, will be sheathed in SmartWrap. Visitors will be able to walk through it and manipulate the functions embedded in the SmartWrap. At Cooper-Hewitt. Call 212/849-8400 or visit www.si.edu/ndm for more information.

Ongoing Exhibitions

Do It Yourself: Home Improvement in 20th-Century America
Washington, D.C.
October 19, 2002–August 10, 2003
This show is an examination of modern American housing and the products associated with contemporary dwellings and the cultural implications regarding gender roles and leisure time in the domestic sphere. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org for further information.

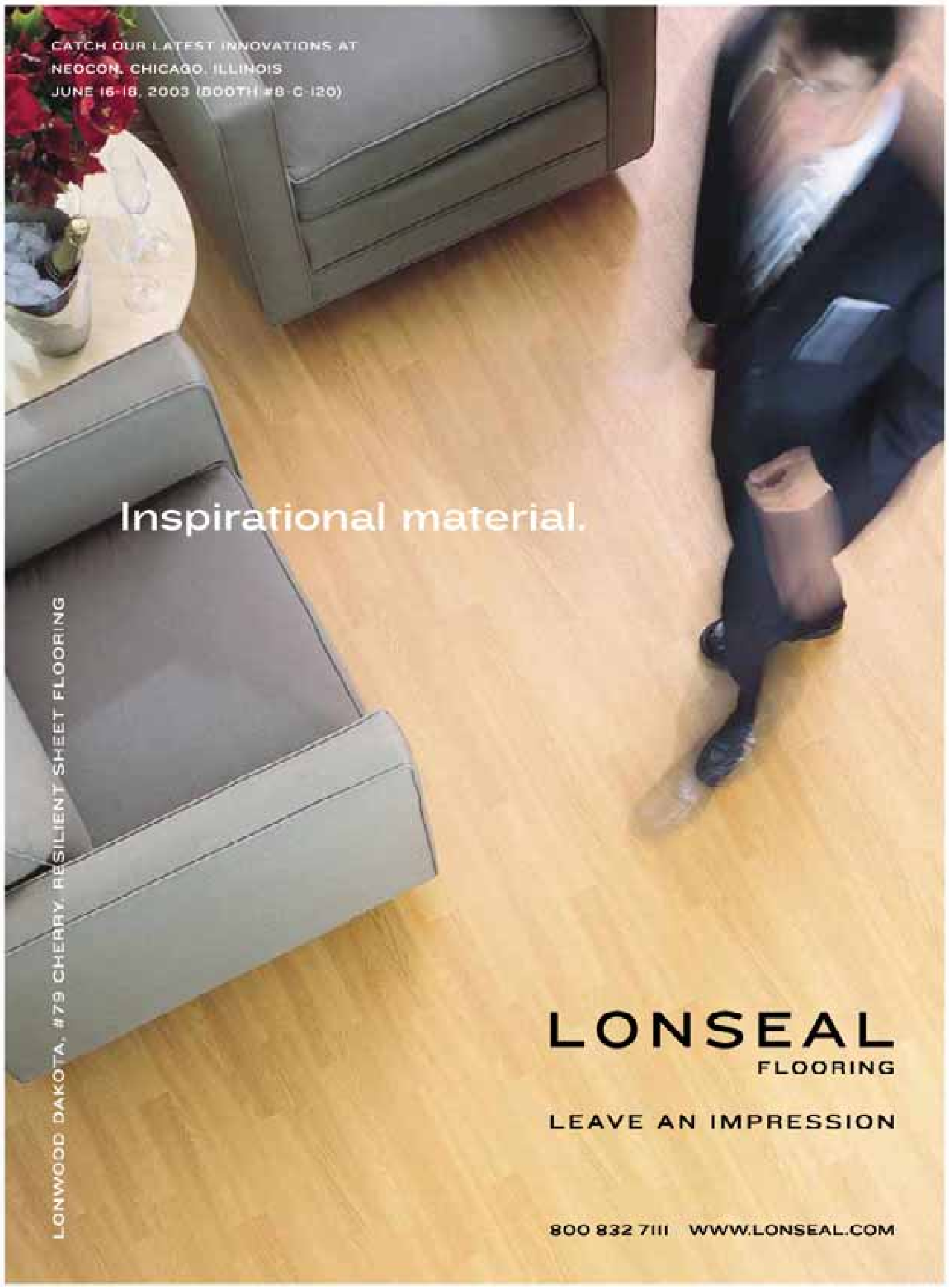
Big & Green: Toward Sustainable Architecture in the 21st Century
Washington, D.C.
January 17–June 22, 2003
Through in-depth profiles of approximately 50 contemporary green projects worldwide, along with a broad examination of global ecological and economic forces, this exhibition demonstrates the transformative powers of sustainable design. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

The Art of Structural Design: A Swiss Legacy
Princeton, N.J.
March 8–June 15, 2003
From New York City's George Washington Bridge to Boston's new Bunker Hill Bridge, some of this country's most acclaimed structures are the products if Swiss design. This exhibition celebrates the contributions of a group of highly influential Swiss engineers. At the Princeton University Art Museum. Call 609/258-3788 or visit www.princetonartmuseum.org.

Fantastic
North Adams, Mass.
March 8, 2003–Spring 2004
In *Fantastic*, MASS MoCA showcases contemporary artists—Miguel Calderon, Gregory Crewdson, Alicia Framis, Nils Norman, and the artist collective Temporary Services—all of whom embrace a world of hallucinatory, visionary, utopian, and otherwise "fantastic" ideas. At the Massachusetts Museum of Contemporary Art. Call 413/662-2111 or visit www.massmoca.org.

Picture This: Windows on the American Home
Washington, D.C.
March 29–August 11, 2003
Picture This presents windows through multiple perspectives and offers an entertaining two-century history of a building element that opens a view into the changing nature of American domestic life. Actual windows, advertisements, film and television clips, models, drawings, and photographs help to explore how windows shape our understanding of the world inside and outside of our dwellings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Roy McMakin: A Door Meant as Adornment
Los Angeles
March 23–June 29, 2003
McMakin became a strong presence in the design scene in 1987, when he founded the Domestic Furniture Company in Los Angeles. The exhibition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is a mid-career survey of the Seattle-based artist, tracing the development of his career in art and design and his unique manipulations of the traditional definitions of furniture and sculpture. At The Museum of Contemporary Art. Call 213/621-2766 or visit www.MOCA-LA.org.

Of Our Time: 2002 GSA Design Awards Show
Washington, D.C.
March 27–October 19, 2003
Through models, drawings, and photographs, this exhibition documents the 24 public projects that received the design award honor last year. The projects show how regional heritage can be integrated with the latest building technology to create dynamic, functional, and attractive structures, spaces, and artworks for the 21st century. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Living in Motion: Design and Architecture for Flexible Living
Barcelona
Through May 25, 2003
In this exhibition, architects and designers attempt to adapt homes and artifacts to the new demands of contemporary living. As part of the Year of Design 2003 at the Museum of Decorative Arts. For further information, visit www.designyear2003.org.

ROY/design series 1
San Francisco
April 19–August 24, 2003
An exhibition of groundbreaking design solutions by South African–born architect Lindy Roy will launch the first of an ongoing series devoted to showcasing the work of contemporary designers in architecture, graphic design, and industrial design. At the San Francisco Museum of Modern Art. Call 415/357-4000 or visit www.sfmoma.org.

Architecture and Design Permanent Collection
San Francisco
April 19, 2003–ongoing
This exhibition will inaugurate a newly installed ongoing presentation of the museum's architecture and design collection. Featuring some 100 works of architecture, graphic design, and industrial design from a permanent collection of more than 4,000 objects, the survey will include well-known classics and works by up-and-coming designers and will highlight special strengths of the collection, including experimental architecture and digital design. At the San Francisco Museum of Modern Art. Call 415/357-4000 or visit www.sfmoma.org for mor information.

Designing the Rose
Boston
April 23–June 1, 2003
As part of the planning process for Shakespeare & Company's Rose Playhouse U.S.A. and celebrating Shakespeare's birthday, this exhibition will feature innovative designs for the world's first historically accurate replication of London's 1587 Rose Playhouse. Curated by architect George Marsh and the Boston architectural firm Payette Associates, the show, through photographs, illustrations, architectural drawings, and text, traces the history of the playhouse and the present-day plans to rebuild the theater using traditional building methods and materials. At the Boston Architectural Center. For more information, call 617/262-5000 or visit www.the-bac.edu.

Both/And: Building Modern in the Context of Historic Architecture
Seattle
May 2003

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The exhibition focuses on built and unbuilt projects that juxtapose modern architecture with historic design—architecture that is built in a decidedly modern manner but retains, refers to, and sheds light on adjacent historic buildings. Exhibition projects will be drawn from the Seattle area, along with select projects from other cities in the U.S., Europe, and Canada, including projects from Foster and Partners; Coop Himmelb(l)au; Dan Hanganu with Provencher Roy and Associates; Schwartz/Silver Architects; Kohn Pederson Fox Architects; and Saucier + Perrotte Architects. At the AIA Seattle Gallery. Call 206/448-4938 or visit www.aiaseattle.org.

Alessi 2003 Coffee and Tea Piazza: City of Towers
New York City
May 2003
This exhibition will feature the North American premiere of Alessi's new selections for the Coffee and Tea Piazza, designed by a stellar roster of contemporary architects. Promising to define contemporary and digitally driven architecture at the beginning of the 21st century, this new edition will feature coffee and tea sets by William Alsop, Wiel Arets, Juan Navarro Baldeveg, Shigeru Ban, Gary Chang, David Chipperfield, Denton/Corker/Marshall, Deszo Ekler, Massimilliano Fuksas, Zaha Hadid, Tom Kovac, Greg Lynn, Morphosis, MVRDV, Jean Nouvel, Dominique Perrault, Kazuyo Sejima, and UN Studio. At the Max Protetch Gallery. Call 212/633-6999 or visit www.maxprotetch.com.

Other Architects
Barcelona
May 2003–May 2004
A part of the Year of Design 2003, this exhibition links the constructions built by animals with the architecture created by human beings. At the Zoology Museum, Natural Science Museum. Visit www.designyear2003.org.

Garofalo Architects: Between the Museum and the City
Chicago
May–October 2003
An architecturally distinctive, pavilionlike structure designed by architect Doug Garofalo will be the first in a series of MCA commissions for emerging and mid-career architects. At the Museum of Contemporary Art. Call 312/280-2660 or visit www.mcachicago.org.

Harlem Lost and Found
New York City
May 3, 2003–January 4, 2004
This exhibition traces the history of Harlem from pre-Revolutionary times to World War I. Working with consulting curator Michael Henry Adams, author of the book *Harlem Lost and Found: An Architectural and Social History, 1765–1915*, the museum has drawn from its rich collections to add a unique dimension to the story of the neighborhood's architectural richness. At the Museum of the City of New York. Call 212/534-1672 or visit www.mcny.org.

Futures2come
Copenhagen
Through June 9, 2003
An exhibition curated by Christian Bruun that started at the Max Protetch Gallery in New York City in December 1999 and has continued on to Europe. At the Dansk Architecture Center. For more information, call 32 57 19 30 or visit www.gammeldok.dk.

Luxury Textiles East and West
Los Angeles
Through August 15, 2004
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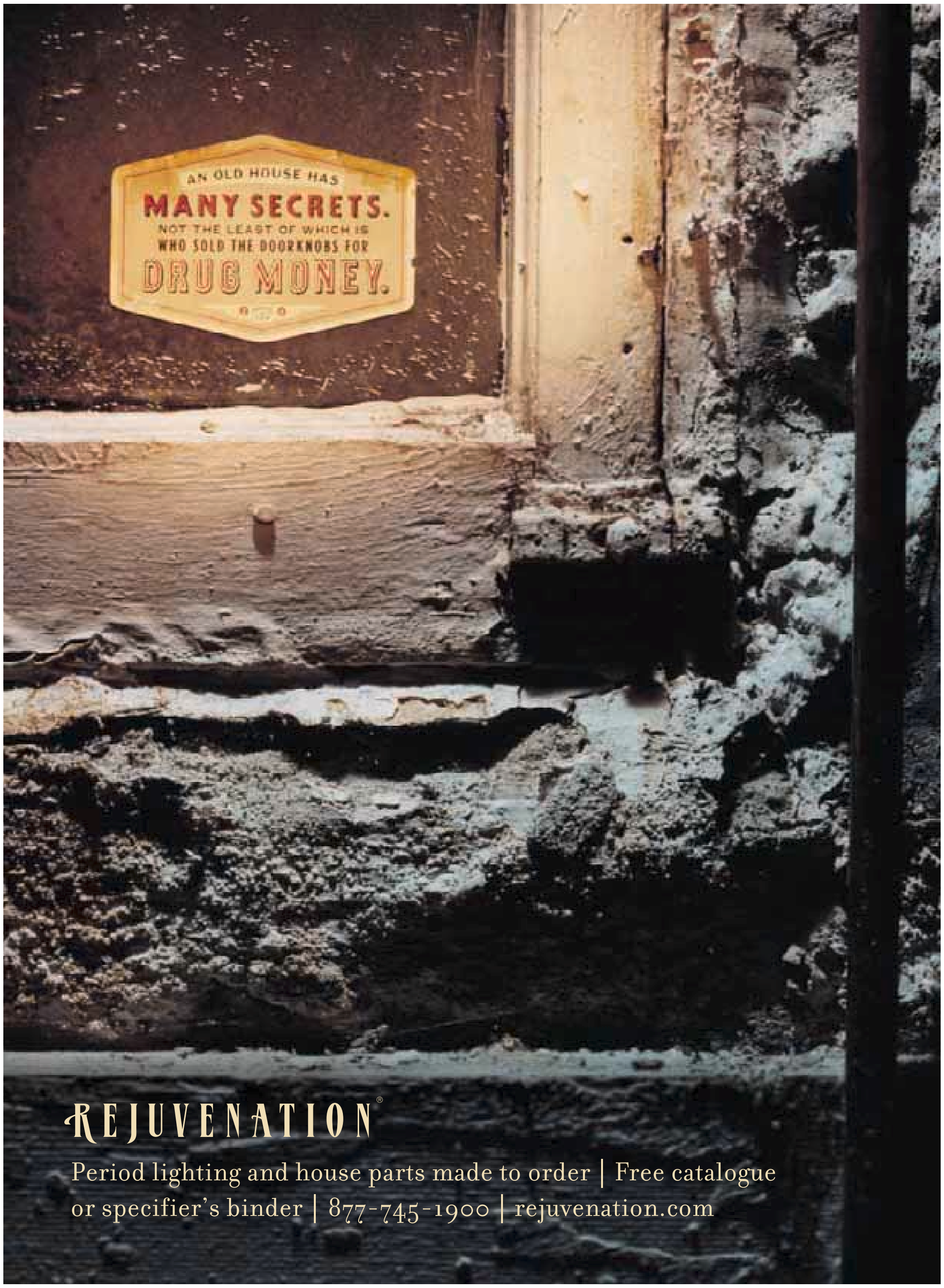

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LACMA's Department of Costume and Textiles, this exhibition highlights extraordinary examples of the textile arts of America, Asia, and Europe from the department's extensive holdings. At the Los Angeles County Museum of Art. Call 323/857-6000 or visit www.lacma.org for more information.

Pere Noguera: Lands
Barcelona
Through August 31, 2003
A poetic reflection on the design of elements of earth used in architecture, in the home, for domestic utensils, for furniture, decoration, the garden, and everything that surrounds us. At the Ceramics Museum, as part of the Year of Design 2003. Visit www.designyear2003.org for further information.

Conferences, Symposia, Lectures

Lightfair International
New York City
May 5–8, 2003
This year's Lightfair promises to be the biggest and most comprehensive annual architectural and commercial lighting conference to date, with more than 550 exhibiting companies occupying more than 1,460 booths, and an expected attendance exceeding 19,000 architectural, engineering, design, and end-user professionals from around the world. At the Javits Convention Center. For more information, call 404/220-2215 or visit www.lightfair.com.

Public Architects Training Workshop
San Diego
May 7, 2003
A preconvention workshop presented by the AIA Public Architects PIA that will cover such topics as sustainable design, building security, the design-build process, child-care-facility requirements, community involvement, how to win and establish design awards, real estate, innovation, and public schools. At the San Diego Convention Center. For more information, call 202/626-7386 or visit www.aia.org.

The Modern Movement in Cuban Architecture
Washington, D.C.
May 12, 2003
Havana architect and editor in chief of *Arquitectura Cuba*, Eduardo Luis Rodriguez will discuss the rich cultural legacy of Cuba and how architects of the Modern movement sought to define an identity for the Caribbean nation. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Sir Nicholas Grimshaw
Washington, D.C.
May 13, 2003
Voted the best building of the past 50 years in an Architect's Journal survey, the Eden Project in Cornwall, U.K., is a showcase for protecting biodiversity. Grimshaw, the project's architect, will speak on his firm's commitment to design excellence based on innovation and a rigorous approach to detailing. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org for information.

The Chrysler Building
Washington, D.C.
May 14, 2003
Nationally recognized designer David Stravitz will present rare images documenting the construction of one of New York City's greatest icons. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

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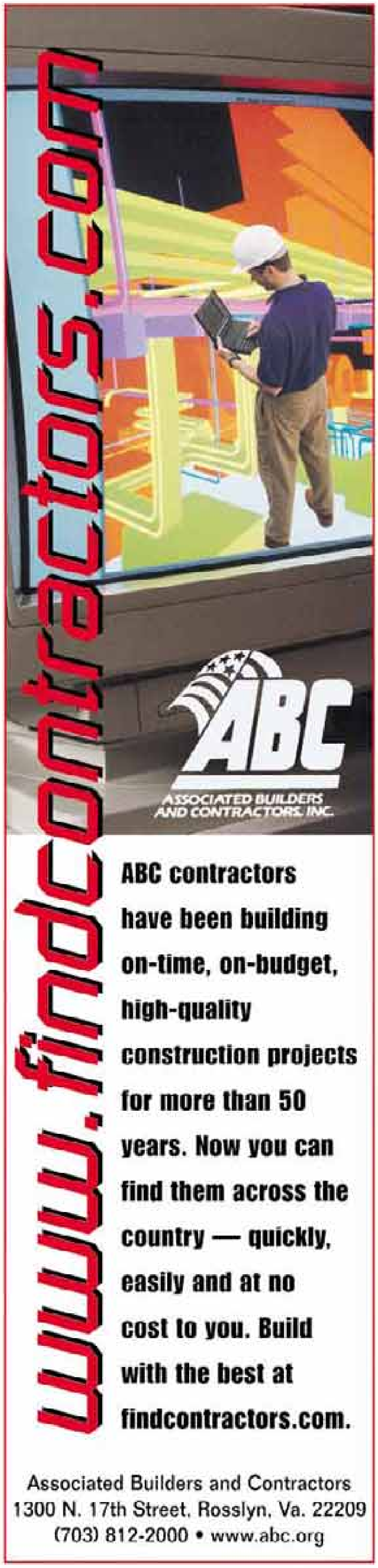
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Dates & Events

Ambient Intelligence: Solid State Technologies in Architecture
Washington, D.C.
May 14, 2003
New technologies allow building skins to be more than just membranes to keep out the weather. It is possible to incorporate the infrastructure of light and information into cladding materials, creating "smart" facades. Sheila Kennedy, AIA, of Kennedy & Violich Architecture, will present recent projects that explore the integration of sophisticated electronic systems and challenge the material conventions in architecture. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

National Design Triennial Conference
New York City
May 16, 2003
This cross-disciplinary conference will explore the major forces shaping design today through keynote addresses and multimedia presentations from curators and designers of products, interiors, architecture, furniture, graphics, film, and fashion. The program focuses on work by studios featured in the National Design Triennial, including BluDot, Diamond + Baratta, Escher + GuneWardena, Fuseproject, Champion Graphics, and Toledo/Toledo. In the Great Hall at Cooper Union. Call 212/849-8380 or visit www.si.edu/ndm.

Ralph Johnson, FAIA
Washington, D.C.
May 19, 2003
Perkins & Will received the American Institute of Architects' Firm of the Year Award in 1999. Architect Ralph Johnson, FAIA, principal in the Chicago-based firm, will discuss the firm's work, including the O'Hare International Terminal in Chicago, the Nature Museum for the Chicago Academy of Sciences, and his commission for a new "green" federal courthouse in Los Angeles. At the National Building Museum. For more information, call 202/272-2448 or visit www.nbm.org.

Tour Abitare Italia
New York City
May 19, 2003
Showcasing the best of Italian home design and celebrating some of New York's emerging fashion designers, the fifth annual Tour Abitare Italia features showroom receptions, exhibitions, and conferences. Call 212/353-1383 or visit www.abitareitalia.com.

SIDIM
Montreal
May 22–24, 2003
The Montreal International Interior Design Show (SIDIM) will celebrate its 15th anniversary. More than 300 international manufacturers, importers, and designers will present their furniture and designs for office, commercial, and residential space-planning applications. At Place Bonaventure. Call 514/284 3636 or visit www.sidim.com/.

Planning for Growth in Rural Areas
Washington, D.C.
May 27, 2003
Smart growth has a role to play in rural as well as urban areas, but models of rural smart growth have not been widely publicized. Keith Schneider of the Michigan Land Use Institute will discuss how some rural communities can benefit by emphasizing their best asset, rural character. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Breakthrough Projects: The Marriage of Economics and Innovation
Washington, D.C.
May 27, 2003
Sandra Mendler, AIA, sustainable design principal for Hellmuth, Obata + Kassabaum, will trace the path of a series of "breakthrough projects" that are realigning expectations about the cost and value of green buildings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org for more information.

Creating Healthy Communities
Washington, D.C.
May 28, 2003
Healthy communities require more attractive physical structures. Vibrant, sustainable communities are those in which people take pride not only in their homes, but in their neighborhoods, as well. W. Christopher Smith, Jr., chairman and C.E.O. of William C. Smith & Company, will describe how one developer became a change agent for a once-challenged, now emerging neighborhood in Southeast Washington. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

37th International Making Cities Livable Conference
Siena, Italy
June 15–19, 2003
Call for papers deadline: April 15

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Dates & Events

An international conference for architects, urban designers, landscape architects, city officials, planners, historic preservationists, and social scientists, where practitioners and academics from around the world share ideas and establish working relationships. For more information, call 831/626-9080 or visit www.livablecities.org.

Density Conference
Boston
September 12–14, 2003
Density can play a key role in reviving urban centers, containing sprawl, and creating a sense of place in older suburban environments. Join designers, planners, journalists, and others from across North America in examining this controversial topic and exploring design for density in settings that range from large and small cities to older suburbs. Call 202/626-7557 or visit www.aia.org.

The 2nd Beijing International Green Building Materials Exhibition
Beijing
September 17–20, 2003
With Beijing's 2008 Olympic Games construction and a bid for the 2010 World Expo, the city's 2nd Beijing International Green Building Materials Exhibition will be held with the theme of green production, green products, and green consumption, and the mission of promoting the application of green building materials in the construction of engineering projects. At the China International Exhibition Center. Call 86 10 8808 2303 or visit www.gbm.com.cn.

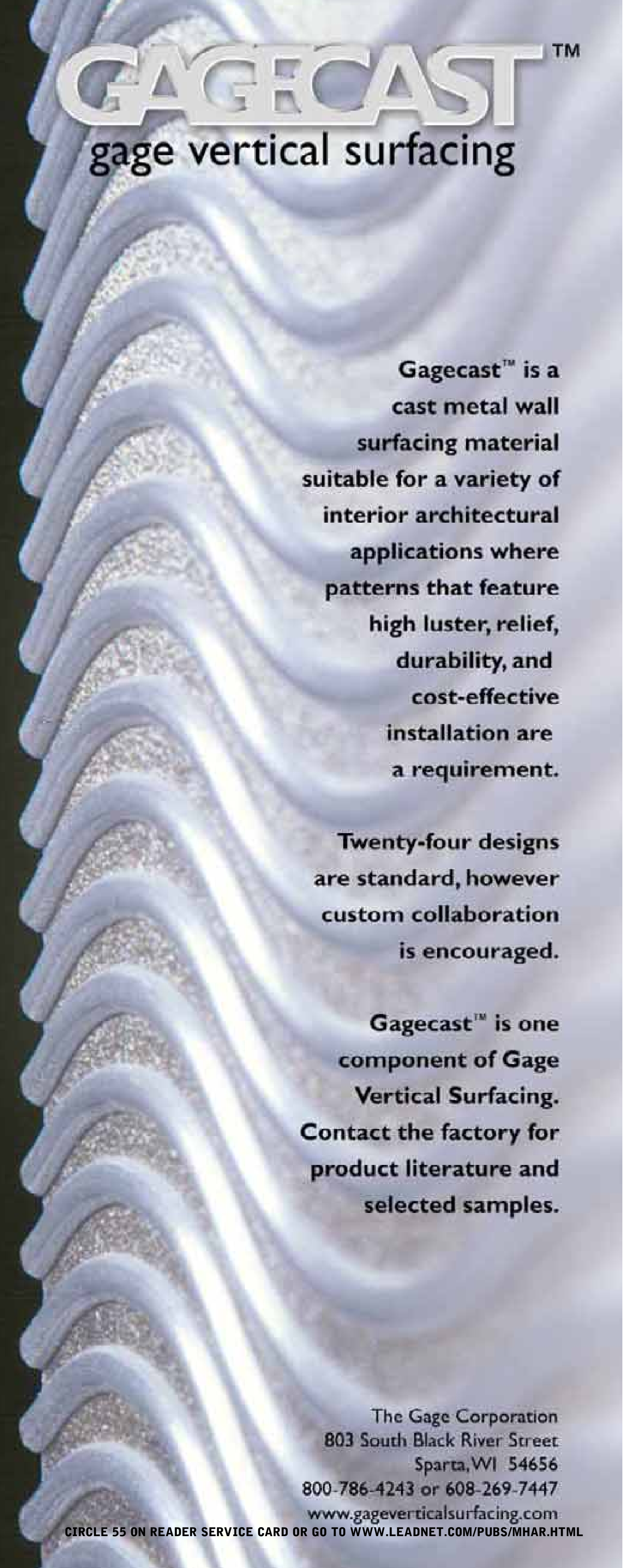
The International Concrete Repair Institute 2003 Fall Convention
Tampa, Fla.
October 23–24, 2003
The convention theme is high-rise repair and will consist of a full slate of technical presentations covering all aspects of high-rise restoration and repair. In addition to the technical presentations, the convention will host technical and administrative committee meetings, exhibits, networking luncheons, and live demonstrations. At the Marriott Tampa Waterside Hotel. Call 847/827-0830 or visit www.icri.org.

Competitions and Awards

Designing the High Line
New York City
Registration deadline: April 25, 2003
Late registration deadline: May 16, 2003
Designing the High Line is the first-ever international ideas competition seeking visionary design proposals for the reuse of the High Line elevated rail structure on the west side of Manhattan. Sponsored by Friends of the High Line, the open ideas competition will culminate in a large-scale exhibition in Grand Central Terminal's Vanderbilt Hall in July 2003. For information, call 212/631-9188 or visit www.thehighline.org.

The American Society of Landscape Architects 2003 Awards Program
Washington, D.C.
Deadline for submission of materials: May 16, 2003
The Call for Entries features four categories of professional awards, including Design, Analysis and Planning, Research, and Communications. Any individual, firm, agency, or academic institution is eligible to enter as long as the project's participants include a landscape architect or a graduate or faculty member of a landscape architecture program. Anyone may submit entries in the Research and Communication categories. Visit www.asla.org for more information.

The 2003 Dinkeloo Fellowship at the American Academy in Rome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Dates & Events

New York City
Submission deadline: June 16, 2003
This year's Dinkeloo Fellow will have the opportunity to participate in the Van Alen Institute's 2003–2004 program for new design directions for public space. Through research and intense exploration, a focused travel experience, and a residency period at the American Academy in Rome, this year's fellow will be asked to investigate, report, and document a project of his or her choice. For more information, call 212/924-7000 or visit www.vanalan.org.

The National Sunroom Association 2003 Design Awards Contest
Topeka, Kansas
Deadline: June 30, 2003
The Design Awards Contest recognizes and rewards exceptional sunroom design that enhances the beauty of a home or commercial building while considering the energy efficiencies of the sunroom. All sunrooms, patio rooms, and solariums constructed in the U.S. or Canada and completed during the 2002 calendar year are eligible for the NSA 2003 Design Awards. For information, call 785/271-0208 or visit www.nationalsunroom.org.

12th Ermanno Piano Scholarship
Paris
Submission deadline: June 30, 2003
The Ermanno Piano Scholarship has been created for newly graduated architects to give them the opportunity to improve their education through a six-month internship with the Renzo Piano Building Workshop. For further information, call 01 44 61 49 00 or visit www.rpbw.com.

The 2003 International Student Design Competition for an Ecohouse
Deadline: July 1, 2003
The challenge is to design an Ecohouse for your own hometown. The two key aims are to make it comfortable, with areas of real "thermal delight," and to make it a real 21st-century building, safe from climate change, able to survive without relying on a great deal of fossil fuels. The competition is open to a student or group of students in a school of architecture anywhere in the world. For more information, visit www.ArchitecturalPress.com.

International Achievement Awards
Deadline for entries: July 1, 2003
Sponsored by the Industrial Fabrics Association International (IFAI), this competition offers architects an opportunity to gain recognition for projects that have creatively used fabric. Project entries include photos of outstanding specialty fabric projects and descriptions of their unique and important characteristics. To request a brochure and entry form, contact Christine Malmgren at 800/225-4324 or 651/222-2508, e-mail cmmalmgren@ifai.com, or visit www.ifai.com.

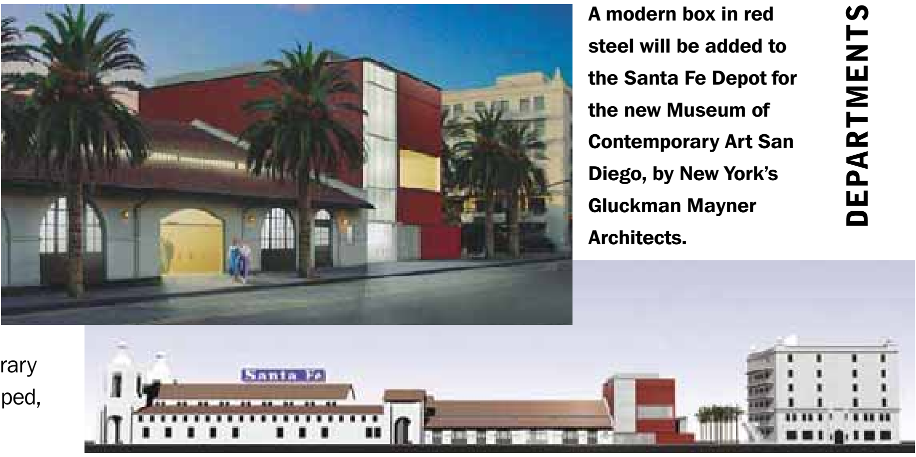
Precast Castle Design Competition
Great Britain and Ireland
Submission deadline: October 31, 2003
The Mid-Atlantic Precast Association (MAPA) announces a contest to design a structurally sound precast castle, open to professional architects or engineers and architecture/engineer students. Visit www.mapaprecast.org to register.

E-mail information about events and competitions two months prior to the event date or deadline to ingrid_whitehead@mcgraw-hill.com.

San Diego is transformed by diverse, challenging civic projects

Correspondent's File

By Ann Jarmusch



A modern box in red steel will be added to the Santa Fe Depot for the new Museum of Contemporary Art San Diego, by New York's Gluckman Mayner Architects.

When architects gather in San Diego for the American Institute of Architects (AIA) annual convention this month, they will be greeted by a city under construction. Outrunning pessimistic economic forecasts, downtown San Diego is being transformed into a livable neighborhood with remarkable speed and diversity.

Across Harbor Drive from the recently expanded convention center, home to the AIA convention, the Padres' baseball stadium, designed by Antoine Predock, FAIA, with HOK Sport, is taking shape. Will Petco Park be an elephant in downtown's new living room or a regional hit? The answer will come when it opens in April 2004.

Around the ballpark, hotel towers with sweeping bay views are rising, a site is being prepared for a long-overdue new main library, and museums are planning expansions. A dizzying number of new or nearly completed apartment, live-work loft, and condominium projects are helping to combat a housing shortage and suburban sprawl.

Rob Wellington Quigley, FAIA, who earlier made his mark here with influential low-income housing, is now at work on two major public commissions: the main library, a joint venture with Tucker Sadler Noble Castro Architects, also of San Diego; and a new children's museum and park, designed with Martin Poirier of Spurlock Poirier Landscape Architecture of San Diego.

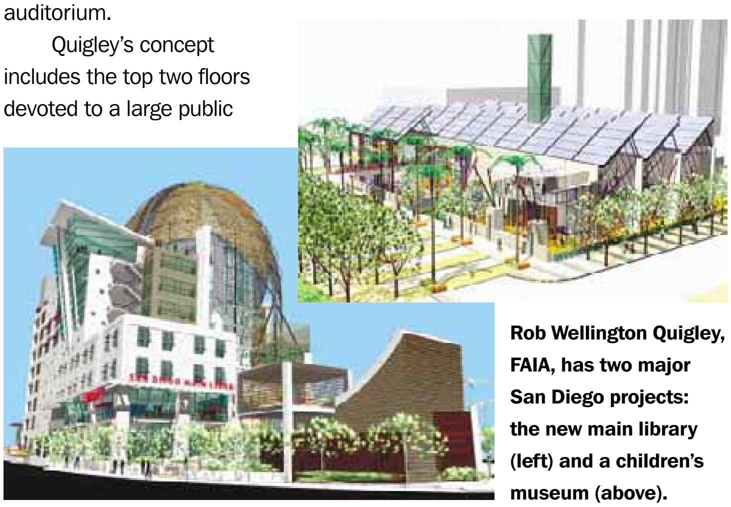
The $149.5 million library will be built east of the ballpark along a new diagonal boulevard that will connect two natural assets: Balboa Park and San Diego Bay. Capped by a monumental lattice dome to echo Balboa Park's historic domed buildings and botanical lathe house, the nine-story, precast-concrete library will replace a 48-year-old cramped, outdated facility.

Irregularities in the city-run library project forced Quigley to redesign the building for three different sites beginning in 1996, when his firm was selected from a large international field. With ground breaking to occur sometime in 2004, the library is expected to open in May 2007.

Now designed for the largest of the three proposed sites, the 367,000-square-foot library will include two floors for future expansion and interim leasing, a reading garden with café, and a 350-seat auditorium.

Quigley's concept includes the top two floors devoted to a large public reading room, and terraces and rooms for special collections and events, all shaded by the lattice wood or 144-foot-diameter metal dome that Quigley compares to a straw hat. Quigley asks, "Where else but in a civic building could everyone have free access to the best views?"

Quigley's design to replace the temporarily closed Children's Museum/Museo de los Niños and a new food co-op in the Ocean Beach neighborhood are efforts to bring green architecture into San Diego's mainstream.



Rob Wellington Quigley, FAIA, has two major San Diego projects: the new main library (left) and a children's museum (above).

The concrete-and-glass museum, for a prominent downtown site along a trolley line, will feature solar roof panels, a cooling chimney, and exposed seismic bracing. One of the first large, green projects proposed for downtown, its energy-efficient components will serve as teaching tools for kids and an example to other builders.

Just north of Broadway, architects Richard Gluckman, FAIA, of Gluckman Mayner Architects, New York City, and Milford Wayne Donaldson, FAIA, of San Diego, teamed up on a two-part expansion plan for the Museum of Contemporary Art San Diego (above). By renovating a historic building on Kettner Boulevard and adding a three-story wing, the museum will double the exhibition space it now has at the main museum in La Jolla and a downtown satellite.

The proposed renovation of the cavernous Mission Revival–style

Ann Jarmusch is the architecture critic for The San Diego Union-Tribune.

IMAGES: COURTESY GLUCKMAN MAYNER ARCHITECTS (TOP TWO); ROB WELLINGTON QUIGLEY, FAIA (BOTTOM TWO)

The Ocean Beach Organic Food Market by Architects hanna gabriel wells.

PHOTOGRAPHY: © ARCHITECTS HANNA GABRIEL WELLS

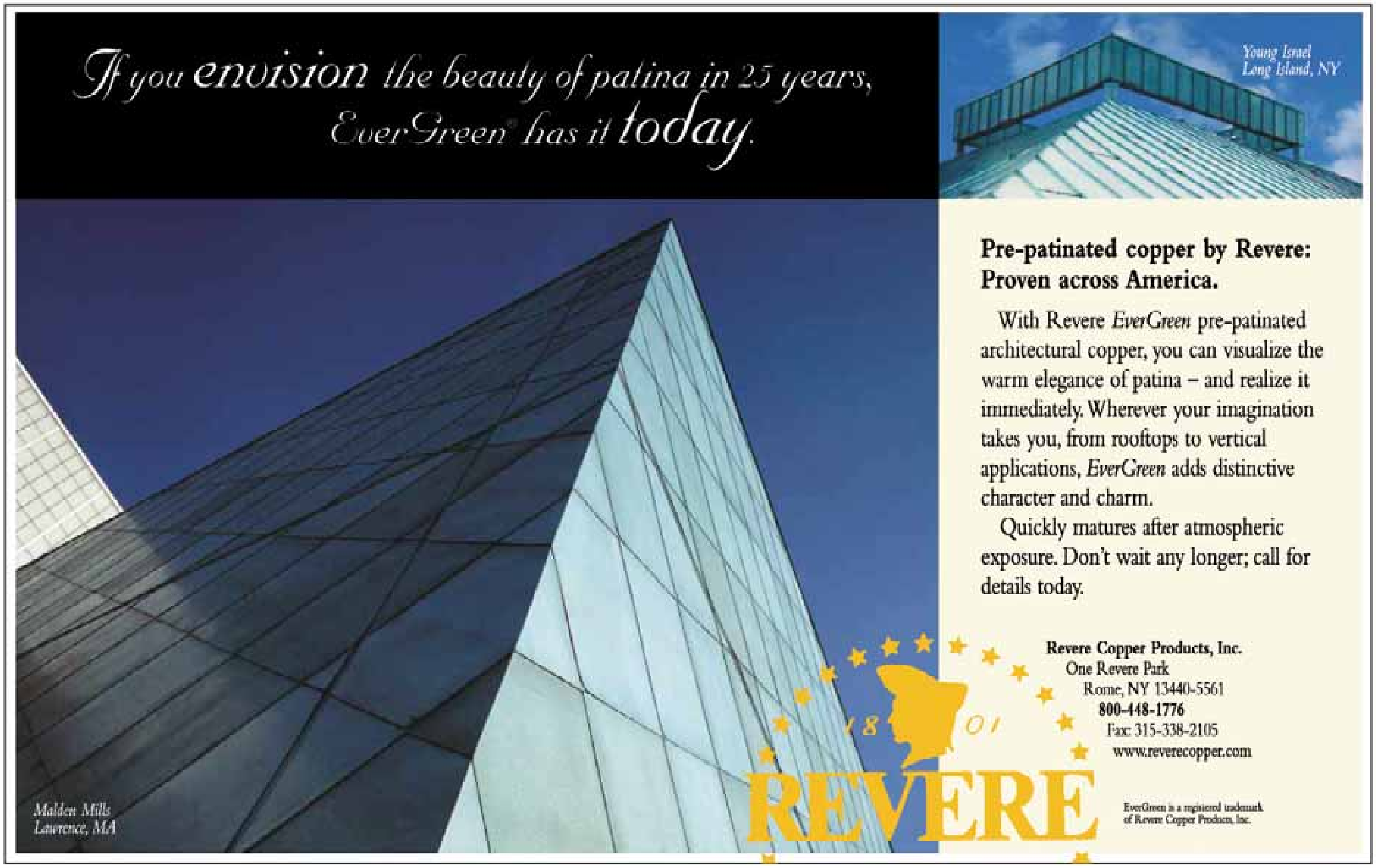
baggage building with exposed steel trusses, huge rolling doors, high ceilings, and clerestory faced mild opposition. It is attached to the Santa Fe Depot—both 1915 buildings by Bakewell and Brown and listed on the National Register of Historic Places—and will be used for exhibitions and events. What did spark sharp public criticism was the Modernist box to adjoin this pair of Mission-style icons. The 15,950-square-foot, strictly rectilinear wing of channel glass, corrugated metal panels, and board-formed concrete was initially viewed as incongruous with the two original buildings.

Gluckman and Donaldson chose the materials, proportions, and structural system for the new building in response to the historic neighbors, then strengthened the relationship during the review process. They recessed windows to emulate the baggage building's inset arched windows and doorways, and selected red-oxide paint for the corrugated metal panels to recall freight cars and complement the 1915 red-tile roofs. Inspired by the baggage building's innovative lightweight steel structural system concealed behind thick, faux-adobe walls, the architects designed the semitransparent new building to reveal its curtain-wall system.

In March, on the second try, the museum design was approved unanimously by the city council. The new building opens in spring 2005.

The Ocean Beach Organic Food Market by Architects hanna gabriel wells of San Diego, grew out of the environmental activism long present in this casual beach neighborhood and its venerable food co-op. The new airy pavilion with a central shopping area and services around the perimeter, including a small deli counter and café with a balcony on the second level, resembles a soaring market hall. Energy costs will be reduced by nearly $24,000 annually with natural ventilation through operable windows and skylights, controlled daylighting, dual-pane low-e2 glazing, and solar hot-water heating, according to James Gabriel, principal in charge. Photovoltaic cells will be placed on the roof. Building materials include recycled-content structural steel; FSC-certified lumber; sealers, paints, and adhesives with low- or no-VOC content; and quarry tile, linoleum, and bamboo flooring.

The innovations in flexible, multifamily housing that have brought national attention to San Diego architects such as Quigley, Smith and Others, and Jonathan Segal is evident in a full city block in downtown's Little Italy. Most of this perimeter housing and mixed-use block, developed by Little Italy Neighborhood Developers (LIND), and designed by seven architects along with Martin Poirier, the landscape architect for the Children's Museum park, has been occupied for several years. With the completion of the final building, the group has at last realized its vision of cre-



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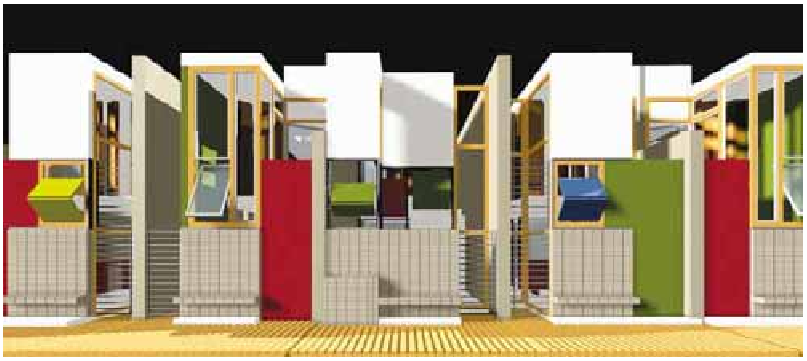
Malden Mills
Lawrence, MA

ating a dynamic block that appears to have evolved naturally over time.

The newest building on the block, a four-story structure designed by Kathleen McCormick, a principal at Smith and Others, houses a jewelry store at street level, lofts, and on the top floor, a private residence with terraces facing east (mountain and city views) and west (to San Diego Bay). Like another Smith and Others building, The Merrimac, on the LIND block, McCormick's is built primarily of masonry. Its demure, symmetrical street facade belies the surprising exuberance of the rear wall facing a courtyard. The rear wall is painted in an enormous black-and-white checkerboard pattern (photo, right), which McCormick likens to an exclamation mark that punctuates the block's varied, but compatible, architectural expressions.



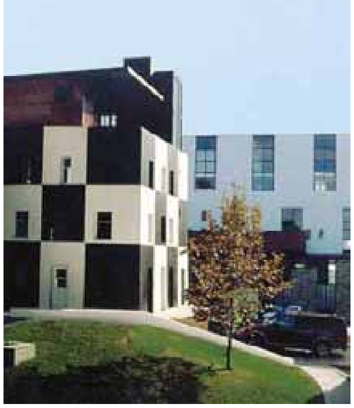
Housing Corridors on Imperial Avenue by estudio teddy cruz challenges zoning laws.

In another urban experiment, estudio teddy cruz has designed Housing Corridors on Imperial Avenue, a project that challenges traditional zoning and land-use ideas. Dense housing, small businesses, and semipublic open space will be interlocked on parcels that incorporate underused land, such as driveways, setbacks, and alleys.

Housing Corridors takes its name from the pattern of narrow streets in its low-income neighborhood east of downtown. Small businesses, with housing above, flourish in and along these streets and alleys. The new housing will be built on five or six narrow parcels perpendicular to Imperial Avenue—a busy commercial street—and surrounded by alleys.

Noting that this mix of uses is not legal to zone in San Diego but is socially successful, the architects want to appropriate and legitimize the concept. They plan to build 51 apartments or live/work units laced with landscaped passages in the first phase, plus 9,000 square feet of small retail or entrepreneurial space facing Imperial Avenue. The housing and retail spaces are layered in vertical bays that can be expanded from a studio up to a three-bedroom apartment or reconfigured for live/work or retail uses. These double-height bays allow for balconies and a roof garden for each unit.

With developable land dwindling and the population growing in San Diego, the concepts driving Housing Corridors and the LIND block stem from much-needed innovation. ■



Housing by Smith and Others, at left.

IMAGES: © ESTUDIO TEDDY CRUZ (LEFT); SMITH AND OTHERS (RIGHT)

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FOR THE EMERGING ARCHITECT

This month, archrecord2 looks beyond the shores of North America to find emerging architects abroad. In Design, you will find two architects, one Canadian by birth, the other Norwegian, who have quickly built up a large portfolio for their young office in Bergen, Norway. And in Work, we take a look at young Americans who have advice on finding an architecture job overseas. On the Web, as always, you will find additions to these stories, plus our forum, Talk.

DESIGN

Looking for a new way, in Norway

For a firm that is only a little more than a year old, Saunders & Wilhelmsen has achieved an astonishing amount of work, both built and on the boards. They accomplished this feat by building without clients, and yet the clients have begun to sign on. The two partners, Todd Saunders, 33, and Tommie Wilhelmsen, 29, took an economic risk in buying land and building their first building, but it has been a risk that paid off.

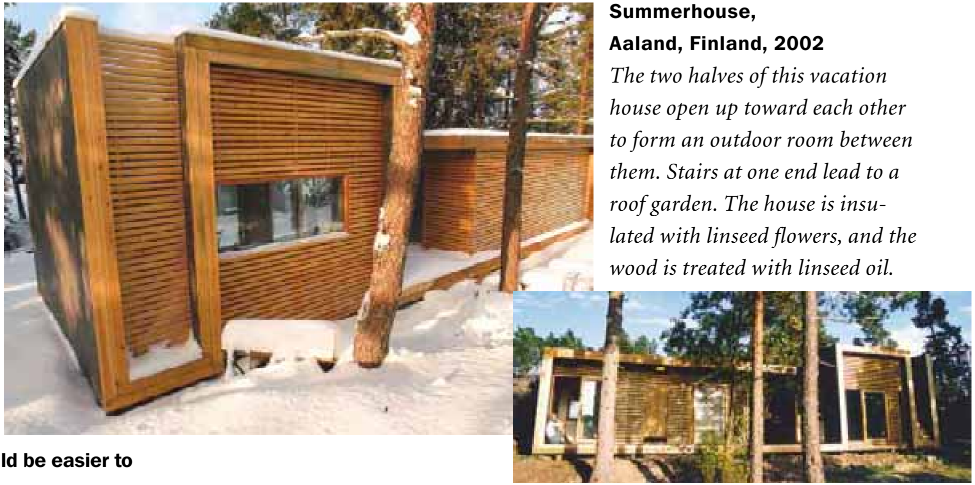
"In this way," Saunders says, "we could pursue our architectural vision in line with our conviction. No compromises. Once we made such a project, we knew that it would be easier to find and convince clients that we were competent architects through this use of a real-life building, as opposed to paper visions of architecture."

The partners live and work in Bergen, Norway's second-largest city. Wilhelmsen is Norwegian, but Saunders emigrated from Canada, where he lived until 1996. He was in Bergen as part of a research project on northern European ecological villages.

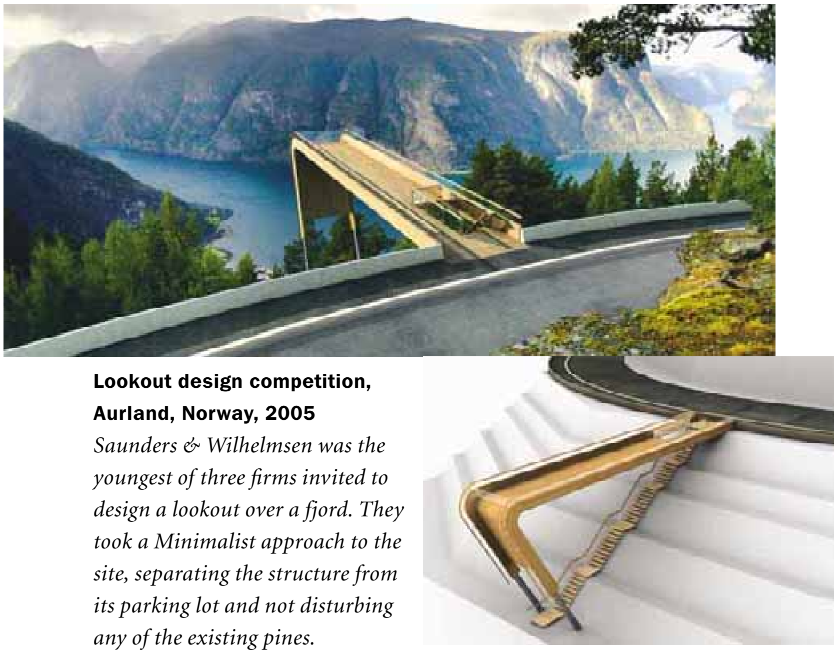
"I spent three hours one sunny June day in Bergen drinking a beer and eating shrimp," Saunders says, "and decided that it is the ultimate urban village for a nature freak."

In 1998, Tommie Wilhelmsen returned to Norway from Stuttgart, Germany, where he had been working with Behnisch, Behnisch & Partner. He and Saunders were both becoming known around Bergen, and the director of the Bergen Architecture School paired the two up to teach a six-week course. As they taught, they discovered similarities in their working styles and career aspirations. Then they developed their plan to build.

This building, a cabin on the edge of a fjord, includes a room for eating and sleeping, and a second, smaller room for any other purpose. An outdoor floor connects the two rooms. As of this writing, the partners are still working on the retreat, but they have used the same indoor/outdoor scheme for two summer cabins for specific clients. Working with a group of students, they completed the first of these commissions last summer and plan to build the second in the coming summer.



Summerhouse, Aaland, Finland, 2002
The two halves of this vacation house open up toward each other to form an outdoor room between them. Stairs at one end lead to a roof garden. The house is insulated with linseed flowers, and the wood is treated with linseed oil.



Lookout design competition, Aurland, Norway, 2005
Saunders & Wilhelmsen was the youngest of three firms invited to design a lookout over a fjord. They took a Minimalist approach to the site, separating the structure from its parking lot and not disturbing any of the existing pines.

IMAGES: © SAUNDERS & WILHELMSEN

(continued from previous page) **When Saunders and Wilhelmsen get a project—and in their first 14 months, they have managed to start work on 20 projects—they sit down at a table and sketch out ideas together.**

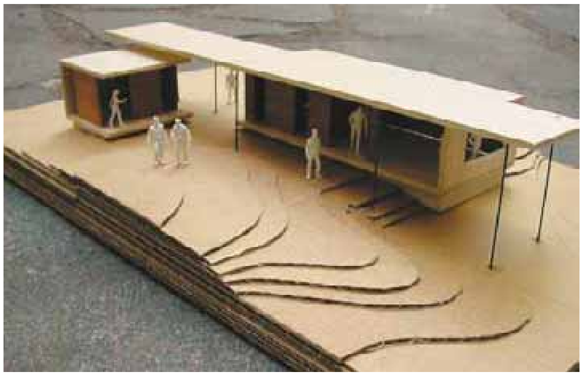
"This process is full of conversation, laughter, and feels like a game children would play," Saunders says. "We try to have fun with what we do."

The two do, however, have a strong sense of social responsibility. Several of their projects have focused on creating new forms of affordable student housing, which is particularly difficult to find in Bergen. Their work has not been hampered by a strong preservation movement that tries to keep contemporary architecture out of the tourist-friendly city center. They are working with a group of political activists to design three temporary structures that the activists will inhabit for three months. As well as acting as a protest against the high cost of student housing, the houses will try to demonstrate new possibilities for urban living.

Saunders and Wilhelmsen are young and admittedly idealistic, but they are getting work done: urban lofts, single-family houses, a competition to design a scenic lookout over a fjord. Their idealism turns out to be practical.

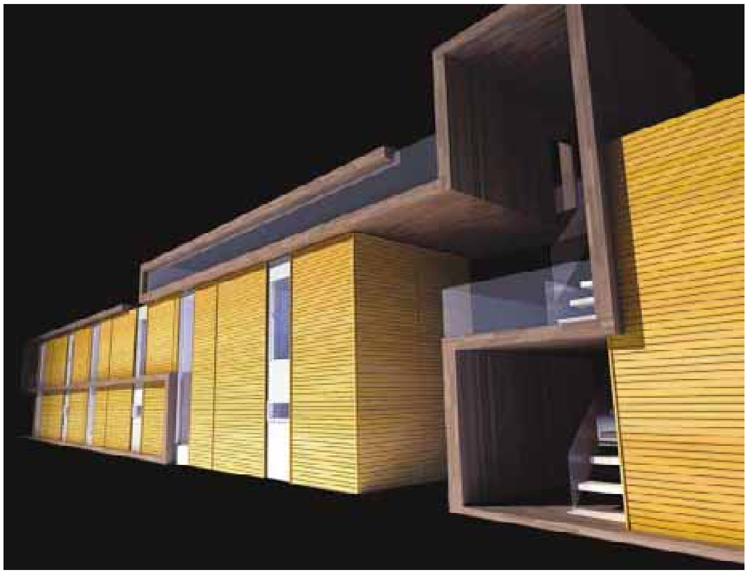
"We ask ourselves all the time, 'What is the value of the projects we make as architects?' " Saunders says. "We always come back to focusing on striving to create architecture with depth." He adds: "We do not want to be architects who just see our projects from a distance. We try to actively participate in making changes to the city in which we work." ***Kevin Lerner***

Go to ***architecturalrecord.com/archrecord2*** **for more projects from Saunders & Wilhelmsen, and for stories on other emerging architects.**



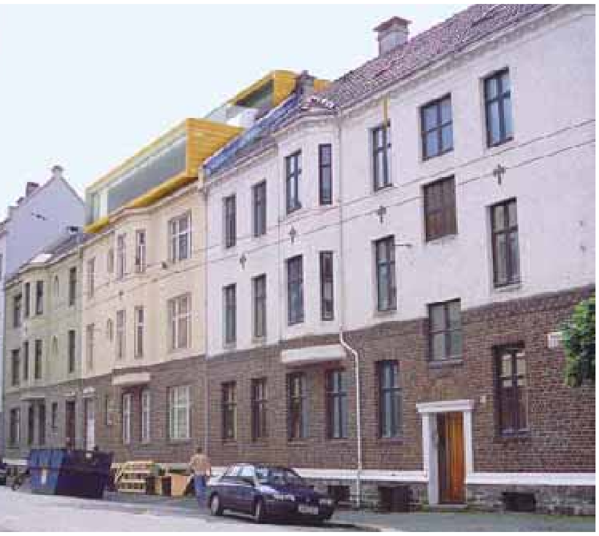
Cabin, Sognefjorden, Norway, 2003

This cabin, like the Aaland summerhouse, incorporates nature into its design, creating an extra, outdoor room. Situated at the edge of a forest on top of a rocky slope, the cabin looks out over the water of an adjacent fjord.



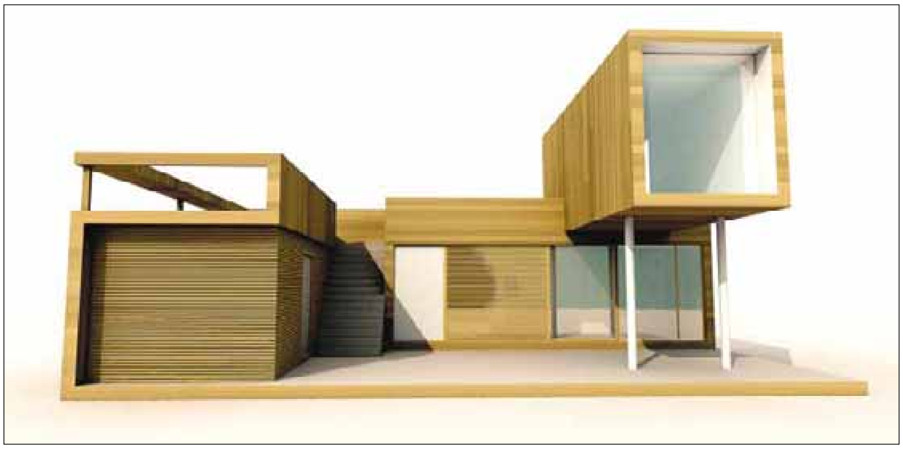
Student housing proposal, 2003

Saunders & Wilhelmsen believe that student housing in Norway should be made more affordable yet still be attractive. Most of their projects are intended for newspaper publication—so that the ideas stimulate debate—and not necessarily for construction.



Møhlenpris student housing, Bergen, Norway, 2003

The architects used a dilapidated four-story building as the basis for a new student housing collective. A two-story addition would house sleeping areas, a kitchen, and a common room. The rooms would be rented at the same rate as other student housing in the city.



Protest house, Bergen, Norway, 2003

Working for free, in a protest against student housing prices, the architects designed three temporary housing units that will be placed in the center of Bergen. At the same time, the houses will serve as an exhibition of urban housing design ideas.

IMAGES: © SAUNDERS & WILHELMSEN

WORK

Finding architecture jobs overseas

Young architects seeking work abroad are doing so for more than just the lure of ancient streets and an attraction to different cultures. For those just out of graduate school, it's a shot at being a part of an exciting project before age 40. There's also a growing sense of disillusionment with the range of prospects available in America: fewer competitions, fewer chances to make a name with a project. But those who have managed to find work or internships abroad know that getting there—and staying—takes more than a solid portfolio.

Those who have found international opportunities offer mixed advice about how to repeat their success. Lisa Tilney, who interned for six months with Barkow Leibinger in Berlin, says you need "a good portfolio and a dose of luck." A professor who knew the firm's principals helped, too, with a recommendation.

Brandon Cook, a graduate of Columbia University, spent two years in Rotterdam working for OMA. "I went to the Netherlands, where I had two or three contacts who were friends," he says. "One knew that OMA needed people at that time. It worked because I was very much willing to get my hands dirty."

For many, the early stages of finding work abroad begin before the first day of classes. Picking a school with a diverse faculty and roster of visiting critics and lecturers is key. Students shouldn't be lax about engaging visitors, either: When international lecturers visit, students are "ready to pounce," one educator explained.

"They gravitate toward the type of school where international architects gather," says Peggy Deamer, an associate dean at Yale University's School of Architecture. "There's a sense that the interesting players on the architecture scene may not be exclusively American. It goes way beyond America at this point."

"Working abroad is part of your need for architectural education," Cook says. "As you're trying to develop your toolbox, you want new tools to use: a different country, different type of office building. Going there is your chance to see history."

For recent graduates, it's also a chance to take part in a diverse range of projects. "I think that there is a perception, in Europe at least, that young architects are given the opportunity to do more interesting things earlier in their career," says Deamer. "It's a more positive model of how you can do interesting work early in your career. In America, it's a really long time before you do a project of institutional value." *Jason Clampet*

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Starting a new firm: Practical advice for the adventurous

Practice Matters

By Peter Piven, FAIA

Almost every architect has, at one time or another, contemplated starting a firm. There are an almost unlimited number of reasons why one might do so. But why would anyone start a new practice when the economy is bad? With the marketplace more competitive than usual, it would seem that a new firm wouldn't stand a chance.

Contrary to this conventional wisdom, many people start firms during periods of economic recession. Charles Dickens's *A Tale of Two Cities* famously begins, "It was the best of times; it was the worst of times." In a way, recessions are like that. They often create conditions that allow new practices to emerge out of circumstances that at the outset seem more like crises than opportunities.

Layoffs are one reason that people strike out on their own. Because labor costs are approximately 40 percent of an established firm's net revenues, it's almost a sure thing that individuals who are quite capable of starting their own firms will lose their jobs when income declines and there is no relief in sight. Although cutting those at or near the top of the salary schedule may not be the smartest decision, in the short term it provides the greatest economic benefit. Sometimes good people leave because they already see the writing on the wall.

Much of this article is based on Architect's Essentials of Starting a Design Firm, *by Bradford Perkins, FAIA, and Peter Piven, FAIA, published this month by John Wiley & Sons.*

At that point, these "liberated" individuals are left to contemplate their futures. Inevitably, some will become masters of their own destiny and leap into the great void called independent practice.

As Massachusetts architect Earl Flansburgh wrote in RECORD some 20 years ago, "There is no good time to start a new firm, only better times." He was right. Although it may be easier to start a firm in a booming economy, recessions often bring new firms great opportunities. Clients who may be reeling from the same economic pinch that's affecting our profession frequently welcome the arrival of new firms with lower cost structures. Clients often find young professionals' personal service and eagerness to please very appealing. On the other hand, larger firms that have been unwilling to take on small projects when they are busy may find they are unable to compete effectively for such projects when they need them just to keep their overhead covered.

What it takes

Houston architect S.I. Morris was being too modest when he said, "It's not very difficult to do well in this business. All you have to do is get work and execute it successfully." Of course, it's not that easy. So, what fundamental attributes should a firm's founders have? They must be leaders—that is, capable of creating and communicating a clear vision for the future—and they should be able to motivate others to help them achieve it. A firm's leaders should be able to articulate how their new firm intends to distinguish itself in the marketplace; for example, by using a unique design philosophy or technical superiority, or by pledging to give clients extraordinary service.

From a practical perspective, owners must be able to manage people, which is different than being good leaders. Managers assign tasks, make work plans, supervise, mentor, and develop talent. They need marketing and selling skills to keep the firm busy. Finally, owners must have money-management skills and provide enough capital to finance the firm's start-up and meet additional financial obligations as they arise.

Choosing partners

It is unusual for any one individual to have all of the skills necessary to start, build, and lead a successful practice. That's one reason why new firms often start as partnerships. Teams of people who can work together and are mutually supportive usually create far better businesses than any one person can alone. Partners can help settle technical, legal, or managerial questions and are useful where more than one pair of eyes is essential to maintaining work quality. Many sole proprietors feel unable even to leave their firms long enough to take a reasonable vacation; a partner can keep the bases covered.

The classic firm leadership mix combines individuals who have the business-development skills needed to get work; the technical acumen to successfully complete it; and the management aplomb necessary to work with personnel and achieve the firm's financial goals. Things work best when each partner appreciates the importance of these attributes and has the ability to assume some of the responsibility for each of them.

Regardless of the firm's organi-

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zational structure, the relationships between principals can either be a fundamental strength or can significantly damage the company's chances for success. Here are some things to consider when thinking about a suitable partner:

- You will probably work best with partners whose values are compatible with yours.
- Partners should like, respect, and trust each other. They do not have to be close friends, although this can be helpful.
- Partners do not have to put in equal effort or achieve equal results, but each must fill a principal role—as a manager, design partner, or business developer, for example—and make a principal-level contribution to the firm's well-being.

Once you've chosen a partner or partners, here are some keys to making the arrangement work:

Most successful partnerships have principals with complementary personalities and skills who respect their partners' different capabilities—in fact, one of the best things about your partners could be that they are not just like you. Strive for fairness in all things—allocation of financial distribution, professional credit, and the other rewards of ownership.

MOST START-UPS NEED THREE TO SIX MONTHS OF OPERATING CAPITAL, PLUS ENOUGH TO COVER ORGANIZATIONAL COSTS.

Put the basic understandings of the partnership or shareholders' agreement in writing—ambiguous or less-than-thoughtful language in such agreements has caused many partnerships to unravel.

If it turns out that your partnership doesn't work, you should try to end it quickly, and if at all possible, amicably.

Capital requirements

Start-up capital is crucial for any new firm and is required to fulfill two basic needs: initial expenses and the cost of funding operations until sufficient cash flow to sustain operations has been established.

One of the first questions most architects ask when contemplating a start-up is how much money will be needed. No two start-ups are exactly alike, but most find it necessary to have enough cash to cover three to six months of operating costs, plus the amount needed to cover organizational expenses. One way to calculate this is to make up a budget, very much the way that you would cost out a schematic design for a new building.

Organizational expenses to be considered are acquisition of office space and leasehold improvements, furniture, computer equipment and software, printed materials, marketing materials such as announcements and brochures, and office supplies. Operational expenses will be incurred for such things as salaries, benefits, rent and related occupancy costs, insurance, taxes, travel, copies, telephone, shipping, and so on. It may be a good idea to include a worst-case contingency fund for use in case cash flow doesn't materialize as soon as the partners hope it will.

And when will the cash start to flow? Some architects start their practices with a commission in hand, or at least the promise of one, which will enable them to begin work almost immediately after they open their doors. But services performed today will not produce cash until a client is invoiced and the receivable is collected, which can be weeks or even months later. The collection period norm is 90 days, although small start-up firms often get their bills paid much sooner.

If the firm starts without a commission in hand, it will need much more cash to keep going while the firm markets its services, secures commissions, performs services, sends invoices, and, finally, begins receiving enough payments to make its cash flow positive.

Sources for initial capital include personal savings; loans backed by equity in personal real estate; loans from friends and relatives; personal credit cards; Small Business Administration loans: and commercial bank loans.

Entrepreneurs should not be surprised when they discover that banks are reluctant to loan money to them. Banks want to be lenders, not investors. They don't want to be the primary stakeholder—and risk-taker—in your firm, and they prefer that architects provide at least half their start-up capital from their personal assets.

Professional services

Every firm needs a banker, and sooner or later most need a lawyer, an accountant, and a tax adviser, as well. Some even employ business consultants. Even those who choose to go it alone as sole proprietors shouldn't feel that they are alone—there are many sources of assistance for you.

When considering providers for legal, accounting, banking, or business-consulting services, look for someone who listens well, understands the unique problems of your profession, and has the requisite experience and knowledge to keep their learning curve to a minimum. If you have a specific problem, you should weigh carefully whether the solutions they propose appear to be effective and proportionate to the issues at hand, and whether proposed costs are appropriate for the circumstances.

Architects consult attorneys to assist with partnership agreements, owner-architect agreements, and possibly liability and labor matters. It is essential that you establish a relationship with a knowledgeable attorney you like and trust. Frequently, a 5-minute telephone conversation with an experienced attorney can provide exactly the right information that will save hours of misdirected effort or needless concern.

It is not uncommon for architects to begin practice without the help of an accountant. If a firm stays very small, or operates as a sole proprietorship, it may never need accounting assistance. However, if a firm begins hiring more than a few employees, or the firm's legal organization is changed to a partnership, subchapter S-corporation, a professional corporation, or limited liability company, then more extensive record keeping and complicated tax returns are inevitable. These demand the services of an accountant. A good accountant can help the newly minted practitioner by setting up a payroll and by giving advice on how to set up a system of accounts that will facilitate both record keeping and financial management.

Since there is no practical way to operate a firm without a bank account, it is imperative to develop a good relationship with a banker. Bankers are important members of the community, especially small communities. In addition to their understanding of money and real estate markets, they generally serve a wide variety of individuals, companies, institutions, and government agencies. Consequently, they

PHOTOGRAPHY: © DAVID HANOVER/CORBIS

develop a useful understanding of these entities—knowledge that can be of service to their architect-clients. Many architects have done work that was referred to them by their bankers.

Since most architects learn to run their business on the fly, it may be helpful at some point for them to seek the advice of a management consultant. The best consultants have assimilated what they know from working with a wide variety of clients in different situations. They understand the underlying issues related to operating a business in a particular profession and can quickly apply their knowledge to new problems. They often provide perspective and impartial feedback that can be most useful when principals are grappling with crucial decisions such as whether to grow or move the firm in a new direction.

DON'T BURN BRIDGES. FORMER EMPLOYERS OFTEN PROVIDE ADVICE, SUPPORT, REFERENCES, AND EVEN REFERRALS.

Ethics: start out right

Architects and other design professionals are expected to practice ethically, of course, and it almost goes without saying that one should establish one's firm on the highest of ethical principles. The AIA's Code of Ethics and Professional Conduct is a good place to look for guidance, even if you are not a member.

Generally speaking, the ethical questions most likely to be encountered by persons starting a firm relate to their conduct toward their former employers.

All architects start out as interns who are employed by others. Those who start their own practices almost inevitably form the relationships and make the contacts that will enable them to go out on their own later while they are working for someone else. When opportunities to practice in your name come along, you may even try to a find way to serve private clients while remaining employed. If you take on outside work, you must use your own identity to get it and your own time and resources to do it. Don't ever imply that you represent your employer to get work for yourself. Always continue to work conscientiously for your employer.

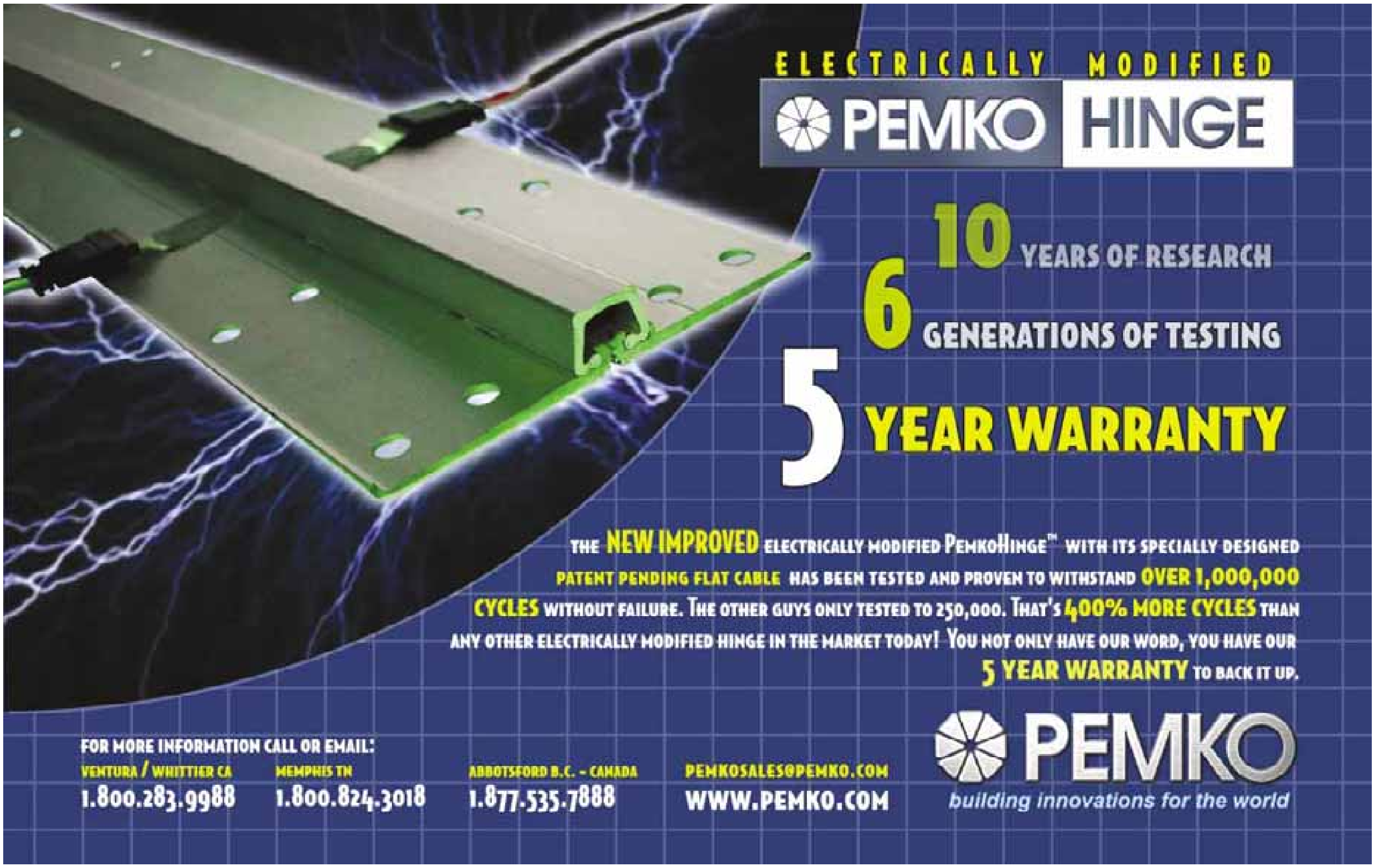
Always ask permission before removing documents. Your employer is ethically obliged to provide copies of documents for projects on which you worked, but you should expect to pay for these copies yourself.

If, in the process of marketing your new firm, you are showing work you did for a former employer, take credit only for the work that you actually did. Be sure to cite your employer on every project on which you participated as an employee.

While you are proscribed from interfering with your former employers' contracts, you are free to inform their clients that you are beginning your own practice. However, if you signed a noncompete agreement with your former employer, other conditions may apply.

You can offer fellow workers employment unless you have signed a noncompete clause that prevents it. In this case, it is best to inform others of your intention to start a practice, then let them decide to join you if they so wish.

You may be surprised to find that former employers are often willing to provide advice and support, including references and, in some cases, referrals. Start your firm in an honorable way, and never burn bridges—you may want to cross them again. ■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Where are the visionary architects who can plan new cities now that we need them?

Critique

By Michael Sorkin

All architecture is political. By marshaling and distributing resources, organizing social space, and orchestrating encounter, architecture is the medium through which human relations are given dimension. Since 9/11, images of assaults on buildings and cities have become ubiquitous symbols of political action, surrogates—in a war without corpses—for our own corporeality. As we watch the war on Iraq unfolding in real time on TV, we are introduced to a modified, militarized, urbanists' discourse, different from our own, but filled with mirror images of architecture's techniques.

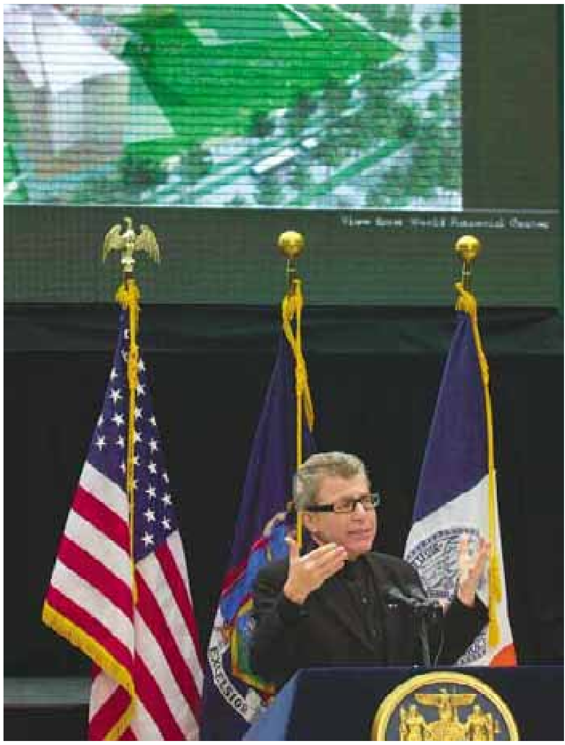
General Tommy Franks, March 21, 2003.

To accomplish the ends of this new "war-fighting ecosystem," cities must be stripped of their character as human settlements and remeasured. If by Al Qaeda, the city becomes Satan's lair, the habitat of devils; if by our own military, it becomes an urban space simply devoid of habitation. We see the city with the brutal objectivity of "aim points" and "target sets" for weapons so accurate they can be remotely aimed—from across the street, from Qatar, Florida, or from outer space—at windows. Because their precision is "beyond belief," in the words of Secretary of Defense Donald Rumsfeld, he can celebrate a strategy predicated on the easy technical classification of good buildings and bad (surrogates for good people and evildoers), and direct retributive fire to its targets from prescient satellites hundreds of miles away. The clean and distant imagery—from the World Trade Center collapsing to the row of mushroom clouds rising over Baghdad—is equally depopulated for those who perpetrate and for those who observe. The message is not simply that we cannot miss, but that no one really gets hurt.

The media make use of architecture's tools, as well. Each network employs global imagery from one or another simulation shop to extend its own panoptic reach. As we zoom in on Baghdad from a position in space, a fabulously detailed computer image of the landscape seamlessly morphs into an aerial photo of the city, then back to a CAD rendering of the presidential palace to be taken out. At the scale of the city, sinister installations are clearly marked—Saddam Airport, Baath Headquarters, the Planning Ministry—so we can map and assimilate both the networks and points of evil, ready for the acupuncture to be administered by our unfailing Tomahawks.

Like their civilian counterparts, military planners are experts at zoning. After the first night of Shock and Awe in Iraq on March 20, the architectural and urban plans became more detailed. Stretching for several miles along the Tigris, a neighborhood of evil was introduced to us, a continuous concentration of the architecture of the Saddamite regime, an area of darkness, precisely red-lined to become a pyrotechnic cauldron, ready for its close-up from the roof of the Al-Rashid or Palestine hotel. Dots on the map suggest that we have administered the appropriate corrective dose only where it is needed. By pathologizing in advance all that we hit, the noisome problem of collateral damage is obviated: It's just urban renewal. Indeed, according to an op-ed piece by Daryl G. Press in the March 26 *New York Times*, Baghdad is particularly well designed for invasion. Lacking tall buildings and laced—unlike Grozny or Mogadishu—with broad boulevards, the city's terrain is not, as Press writes laconically, "ideal for urban defense."

To justify the war, Bush repeatedly elided 9/11 and the attack on Iraq as cause and effect. There is something striking in the coincidence of the planning endgame at Ground Zero with the violent site clearing and promised reconstruction underway in Iraq. Already, the *Times* had reported that the administration has invited Bechtel, Fluor, Halliburton, Parsons, Washington



Daniel Libeskind and his winning scheme for the World Trade Center site, February 27, 2003.

Contributing editor Michael Sorkin is the director of the urban planning program at City College of New York.

PHOTOGRAPHY: © CORBIS (LEFT); AP PHOTO/BEBETO MATTHEWS (RIGHT)

(successor to Morrison-Knudson), and the Berger Group to bid on billions in projects via an accelerated process. “Bechtel would be proud to rebuild Iraq,” a spokesman is quoted as saying, and surely they would be proud to get a piece of the action in downtown New York City, as well. Iraq will require its own development corporation, and the administration is suggesting that these contracts will be supervised by an “interim authority” (shades of the LMDC and the Port Authority), only answerable upward. War becomes the extension of planning by other means.

Our own response as architects has been uninspiring. Architecture’s political voice speaks in many tongues, and there is no reason to assume that our views—never mind our styles of expression—should be uniform. To the contrary, the idea of liberty (and of its product, difference) is the repudiation of the single voice. At the same time, this expressive latitude does not mean a world of endless relativism, one in which the defense of principle is made moot by an idea of tolerance that reduces social relations to a Hobbesian jungle of pure opportunism and anything goes. In particular, we look to our avant-garde for a riposte to power, for our own targets of opportunity. Avant-gardes always harbor the political, the idea of the overthrow of the status quo. To escape mere nihilism, though, there must be some integral vision of the good, however obscure its forms at present. Unfortunately, our response to the destruction of the idea of the city by neoliberal globalization or by neocolonial warfare has produced little constructive speculation about urbanism’s future. Having seen the looming disaster, too many of our most talented have simply embraced it: Many architects are

THE CITY CONFRONTS FOUR MAJOR CHALLENGES IN THE FUTURE, ALL OF WHICH HAVE IMPLICATIONS FOR FORM.

Diller + Scofidio’s *Tourisms* installation at the Whitney Museum in New York.

PHOTOGRAPHY: © MICHAEL MORAN

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becoming proponents of the sprawl and the one-size-fits-all mentality that is strangling the earth.

But what ideas of the good city are truly worth defending? And how can the architectural avant-garde use its quiver of innovation and transgression to defend them? For me, the city confronts four major challenges in realizing its future, all of which have implications for form. The first of these is sustainability, the idea that numbers and resources must be balanced in order to conserve and enhance the health of both cities and the planet. The second issue is access. This entails the just distribution of global resources and the "freedom of the city" that is a fundamental right of urban citizenship. The third is the defense of privacy from the multiplication of techniques of surveillance and the manipulation that prevent us from freely forming and maintaining our sense of self. Finally, valuable living cultural and physical ecologies must be preserved. No intelligent form of urbanism can neglect the defense of its historic successes.

On an exponentially urbanizing planet, the construction of new and sustainable cities is an urgent necessity, and we haven't risen to the challenge. Given the struggle between the goals I've listed and the pressures of a winnowing globalization and militarization of culture and control, the challenge is both how to build these cities and how to find the means for their individuality. Neither nostalgic visions nor the depredations of planning left to the ineffable wisdom of the market will do: Not only bombs obliterate. This assault puts the premium on artistic invention, for the creation of a singular architecture that is sustainable, malleable, and beautiful. And it is here that an engaged avant-garde becomes more crucial than ever.

Two of our most celebrated avant-garde architectural firms have very visible projects in New York just now. Daniel Libeskind's scheme for the reconstruction of Ground Zero [RECORD, March 2003, page 29, and April 2003, page 33] and the exhibition of the work of Liz Diller and Ric Scofidio at the Whitney Museum, *Scanning: The Aberrant Architectures of Diller + Scofidio* [RECORD, April 2003, page 103], are widely celebrated as the best and most truly innovative we can do. But seated comfortably in their institutional venues, do either of these firms have the potential for either clarifying shock or inspiring awe? Is there anything new here?

SEATED COMFORTABLY IN THEIR INSTITUTIONAL VENUES, DO THESE FIRMS CLARIFY SHOCK OR INSPIRE AWE?

The final Libeskind scheme is simply conventional, its putative avant-gardism occlusive rather than innovative, offering up poignant, if familiar, symbols to "balance" the real investment to be made and the major uses to which the site is to be restored. The grid will return, there will be shops on the street and in a vast mall underground, and millions of square feet of unneeded office space will be built. The program will be just as it was. Yet for the authorities, who were so roundly castigated for previous failures of innovation, the idea that they're now actually thinking out of the box is bolstered by foregrounding Libeskind's progressive credentials (established by referring to previous "avant-garde" work), by his hip costuming and self-presentation, and by the thick camouflage of angularities shrouding the architecture whose future may or may not be in his control. At the same time, the idea that this formal experimentalism might harbor a risky politics is defused by Libeskind's sleeve-worn heart, by treacly recitations of his immigrant sagas, by the sudden appearance of an American Flag in his chic lapel, and by his grinning face as he rings

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the opening bell at the American Stock Exchange, much like Michael Eisner or Martha Stewart at the New York Stock Exchange.

At the Whitney, things are decidedly more promising. Diller and Scofidio have long worked with acumen and verve at the sites of crucial issues in urban politics. By addressing the rites of tourism, the media of surveillance, the rituals of domesticity, the alienation of everyday life, and the centrality of the body to architecture, their practice can be said to be genuinely critical. Canny in their combination of irony and sensuality—two of the cudgels historically used by the avant-gardes to browbeat cultural norms—these excellent designers, by responding to the threats of the virtual, continue to celebrate the prosody of the physical.

AS A HYPERAESTHETIC CRITIQUE, THE WORK SEEMS TO PULL ITS PUNCHES, DILATING ON AMBIGUITY AND MIXED MESSAGES.

If I have a question with their work, it is with a certain failure to behave badly, and for their selection of targets grown long in the tooth. This is the old issue of how acceptable a message can be before it simply becomes part of the medium. Caught up in a hyperaesthetic critique, the work seems to pull its punches, dilating on ambiguity and mixed messages. But does anyone in the Issey Miyake generation actually iron (*Bad Press: Dissident Housework Series*)? Hasn't the numbness of the robotic production line been better covered by Fritz Lang and Charlie Chaplin (*Master/Slave*)? Has anyone failed to observe the homogenization of tourism (*Tourisms: suitCase Studies*)? Must we still express superiority to simple folk who love their lawns or their vacations (*The American Lawn: The Surface of Everyday Life*)? Is surveillance really deconstructed by video monitors over the bar at the Brasserie? This is work that makes me long for both the rapier and for utopia, for the out-of-bounds, for violence or hilarity or idiosyncracy.

The power of Diller and Scofidio's project, though, is not its p.c. critique, but the form of its objectification. When the beauty is flat out—as in their tense suspension of Samsonite luggage in the *Tourisms* installation at the Whitney, or that stunning Blur building in Lake Neuchâtel at the Swiss Expo for 2002, or those intoxicatingly theatric choreographies (such as the *Jet Lag* multimedia play)—the longing for a better world finds focus. If the avant-garde is to have a utility beyond indulgence, it's time for both excess and straight talking, for the surrender of irony and hair-splitting intelligence to a frenzy of demands for a better world. The strategy of the avant-garde depends, always, on too much, on some willing form of bad behavior, on blurring old certainties. But totalitarianism trumps ambiguity every time. War is the ultimate bad behavior and the canny politicians in charge of the current carnage—by constantly presenting themselves as an avant-garde, inventors of the "revolution in military affairs" and pioneers of a new "battlespace"—try to supercede their own savagery by giving it fresh form. We must do better than this. What's needed now are clear propositions at the scale of globalizers, whole cities imagined from scratch, big chunks of alternative realities. Against the aesthetics of alienation and annihilation we must respond with fresh forms of survival and joy. Architecture must take the field. ■

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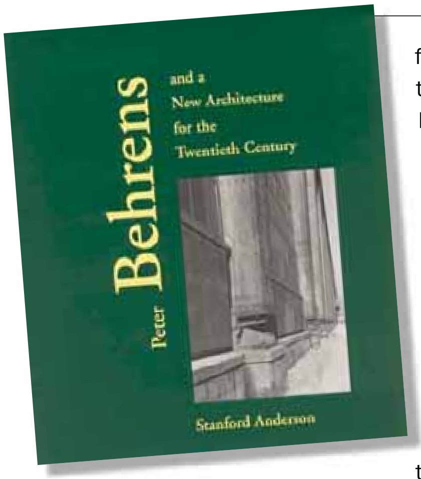
Retrospectives on architects from all over the globe, and contemplating places of leisure

Books

Peter Behrens and a New Architecture for the Twentieth Century, *by Stanford Anderson. Cambridge, Mass.: MIT, 2003, 443 pages, $42.*



Peter Behrens is now mostly remembered for his work in the early 1900s for the German General Electric company, the AEG, for which he designed a range of new products and graphics as well as buildings. His interest in designing for industry deeply influenced three architects who worked for him in Berlin around 1910: Walter Gropius, Ludwig Mies van der Rohe, and Le Corbusier.

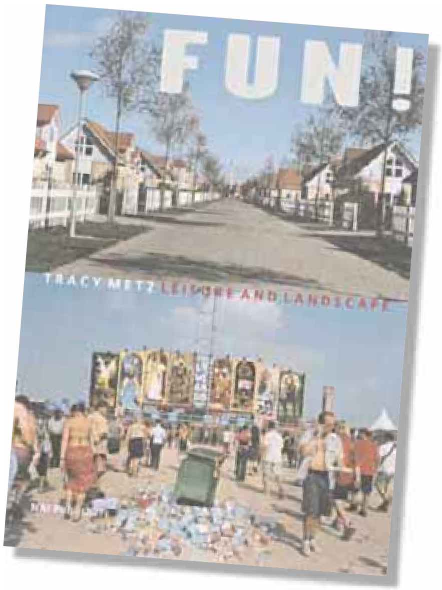
For these reasons alone, one would expect that there would be a considerable amount of historical research on Behrens, yet this has not been the case. His later stylistic and ideological shifts, first following the younger generation in Germany toward the Modern movement in the 1920s and then returning to official Neoclassicism as a Nazi in the 1930s, have understandably tended to dampen enthusiasm for his earlier contributions to architecture. This clear and critical book on Behrens by eminent MIT professor Stanford Anderson is a welcome addition to the still rather small literature on Behrens in English. It includes a complete listing of Behrens's works and an updated bibliography of the mostly German-language scholarship on him.

It is much to Anderson's credit that he does not attempt to gloss over the ultimately disreputable nature of Behrens's later politics. Anderson first situates Behrens in the cultural context of the early 20th century, when he turned from the Art Nouveau and Viennese Secessionism of the Darmstadt colony toward a geometrically simplified Neoclassicism. The author then examines the theoretical basis of Behrens's work and traces in detail his strategy for uniting technology and art around 1910. This part of the book includes a consideration of Behrens's important influence on the German Werkbund, which has also been the subject of a book-length study by Tilmann Buddensieg. Anderson's primary focus here is on Behrens as an architect who attempted to give form to early-20th-century Germanic ideas about the need to synthesize art and industry. Like many of his contemporaries, Behrens believed that the new 20th-century industrial era had its own "will to form," or *Kunstwollen* (a term coined in 1893 by the Viennese art historian Alois Riegl), which differed from all previous historical epochs. In his most famous work, the AEG electric turbine factory in Berlin (1908), Behrens attempted to "spiritualize" German industrial production through the use of modern industrial materials, constructing forms that suggested, but did not directly imitate, Greek temples and medieval monastic halls as well as modern factories.

Unlike earlier Modernist historians, Anderson does not attempt to suggest that with this building Behrens had moved beyond a modernized and industrialized version of the Classical tradition. He instead situates the Turbine factory in relation to other works of Behrens's office at this time, such as the Mannesmann offices in Düsseldorf (1910) and the German Embassy in St. Petersburg (1912), whose exterior clearly foreshadowed the later stripped Classicism often associated with totalitarianism. This aspect of Behrens's work, so important to 20th-century architecture between the world wars, is given equal weight to the other aspects of his wide-ranging and highly influential career. *Eric Mumford*

Fun! Leisure and Landscape, *by Tracy Metz, with photo essays by Janine Schrijver. Rotterdam, the Netherlands: Nai Publisher, 2002, 285 pages, $32.*

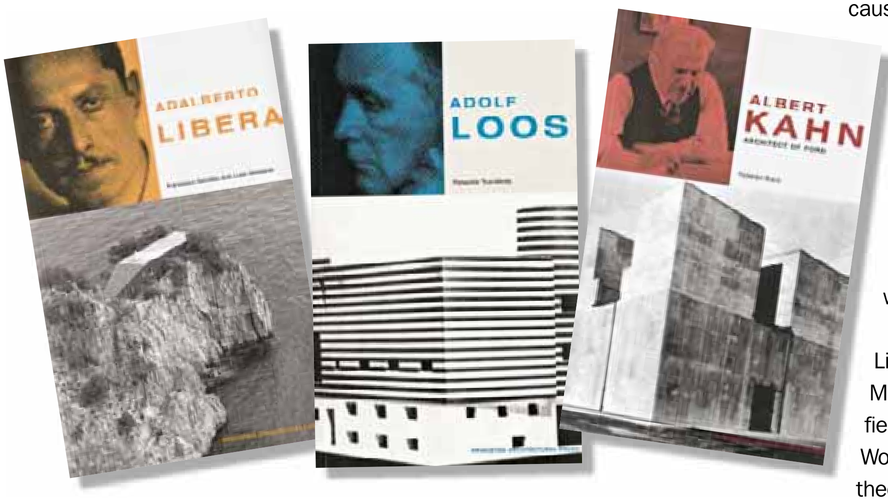
On Queens Day, in the Netherlands, author Tracy Metz (RECORD's correspondent in the Netherlands) tapes off part of the narrow street in front of her house. It faces one of Amsterdam's breathtakingly beautiful canals and is prime real estate on this national holiday turned giant street fair. She auctions her space to a college students' beer stand and leaves town. On another day, glitter-spangled wigs and well-toned bare male torsos make their way past her canalside window en route to the Gay Parade, a spectacle that now draws 250,000 gawking onlookers, three times the population of the city's historic center. "I feel like a tourist in my own city, an object in my own museum, an attraction in my own amusement park," she writes.



Amsterdam has not entirely turned itself over to tourists, as have Venice, Florence, and increasingly, Rome. But even the casual visitor might wonder if Europe—with every centuries-old center pedestrianized and cutesified and filled with culture fairs—is not on its way to becoming the Boutique Continent.

In her survey of what she calls the "leisure landscape," Metz gives an ironic Dutch perspective to the globalized industry of fun. Landfills in this damp, mountain-free nation have been converted into artificial ski slopes for eager tourists and natives. Leisure villages—which look to American eyes like toy 1950s tract suburbs—have popped up in the exurban agricultural frontier. The rise of spectacle architecture is implicated: Rotterdam's Department of Leisure Economy deploys Ben van Berkel's Erasmus Bridge as the battered port's cheerful new logo. Rem Koolhaas, Harvard's czar of shopping, is replanning the 1960s suburb of Almere as a multilayered infrastructure of retail, transportation, and relaxation.

While places like Tuscany and Provence have been fully transformed into lifestyle concepts, Amsterdam, to the casual visitor, seems to have found a sane alternative. In *Fun!*, Metz assures us that it, too, is being loved to death by tourism. The Dutch are analyzing the leisure phenomenon with enthusiasm, but they don't know any better than Americans do how to live a real life in a place perpetually under siege by those who want to consume it. Are they really looking for answers, or content to just enjoy the show? *James S. Russell, AIA*



Albert Kahn: Architect of Ford, *by Federico Bucci. New York: Princeton Architectural Press, 2002, 184 pages, $24.95.*
Adolf Loos, *by Panayhotis Tournikiotis. New York: Princeton Architectural Press, 2002, 200 pages, $24.95.*
Adalberto Libera, *by Francesco Garofalo and Luca Veresane. New York: Princeton Architectural Press, 2002, 208 pages, $24.95.*

At first glance, the subjects of this little series seem only loosely connected, if at all. But Albert Kahn (1869–1942), Adolf Loos (1870–1933), and Adalberto Libera (1903–63) were roughly contemporary, and none was a Fountainhead-type architect. Albert Kahn insisted, "Architecture is 90 percent business and 10 percent art." Of his firm, he wrote, "There is no place here for the temperamental artist. The clearheaded businessman must have charge." In 2002, Kahn was nominated for the AIA Gold Medal. At a time when designers of eye-popping buildings are king, should we be surprised that he didn't win?

Kahn was known, of course, for his industrial buildings, especially those for Henry Ford. The industrialist wanted not an artist who would build a glorious image, but a designer capable of responding concretely to the specific demands of mass production. Bucci writes that Kahn was indeed closer to the pragmatic industrialists for whom he worked than to the intellectual designers of his day—or any day. Kahn felt that the architect was a technician at the complete disposal of the client.

Loos was better known as a rationalist theoretician than for his architecture, including the American Bar, Vienna (1907); Steiner House, Vienna (1920); Villa Mueller, Prague (1930); and his Chicago Tribune competition entry of 1922 in the shape of a column. Unlike Kahn, Loos was seduced neither by industry nor technology, both of which "he considered fatal to the historical evolution of humanity," writes Tournikiotis. But like Kahn, Loos had little truck with the idea of the architect as artistic genius. The architect, he believed, should be a mason who espouses an aesthetic of truthful construction and utility. Loos is known for the maxim, "ornament is crime," but said of it in 1924, "I affirmed 26 years ago that the evolution of humanity would cause ornament to disappear from functional objects…. But I never thought like the purists who pushed this reasoning to the absurd, that ornament should be systematically abolished." He believed in " 'belonging to one's time' and, consequently, to tradition," writes Tournikiotis.

Unlike Kahn and Loos, Libera, the Italian protagonist of Modern architecture, fully identified with the avant-garde. Before World War II, he was a rationalist theoretician and architect, whose designs included the Italian pavilion for the Chicago World's Fair (1933) and Casa Malaparte, Capri (1938). He associated himself with Mussolini's Fascist state and wrote propaganda for it. After the war—and a period of reflection—he became a leading figure of postwar reconstruction and a significant architect, mainly of housing, and a city planner during the boom of the 1960s. But his prewar architecture, as shown in this book, was no match for such fellow Fascists as Terragni and Piacentini. And Libera's postwar buildings look pedestrian—more muscle than inspiration. Which, however, is no reason not to welcome this first English volume about him.

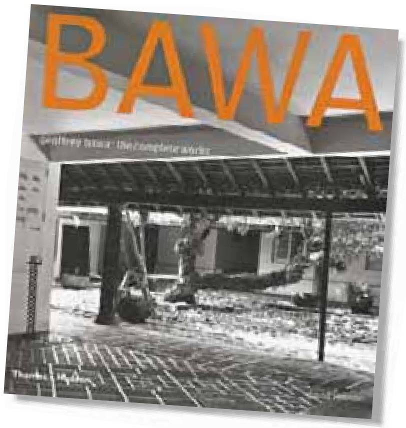
Luigi MORETTI
WORKS AND WRITINGS

Each volume in this series is about 200 pages long and printed in black and white. All are very readable. *Andrea Oppenheimer Dean*

Luigi Moretti: Works and Writings, *by Federico Bucci and Marco Mulazzani; translated by Marina De Conciliis. New York: Princeton Architectural Press, 2002, 232 pages, $100.*

Think of Fascist architecture, and Albert Speer's ponderous, Classical confections come to mind. In Fascist Germany, working in a Modern idiom was cause for prosecution or worse. Not so in Italy, where the Fascist years produced many gracefully Modern buildings. Luigi Moretti (1907–73) created some of the best examples, including the urban plans for the Foro Italico, the Piazza Imperiale, and the Palazzo Civilta, all in Rome, and his renowned entry for the E.U.R. competition of 1937. Moretti neither recanted his Fascism nor associated himself with the prevailing rationalists, whose architecture he described in 1936 as "born on paper, where it will live and die infallibly." He identified himself primarily as a Roman, and found inspiration in the Baroque works of Bernini, Borromini, and Michelangelo, as well as the Greek architecture of the Parthenon. "He was of the avant-garde but also of the ancients," Mulazzani writes. Ironically, his postwar designs were bulky and closed compared to his earlier open, elegant volumes, although in the Montreal Stock Exchange (1964) and the Watergate Complex in Washington, D.C. (1971), he mitigated massiveness with abundant glazing.

Moretti has been overlooked largely because his major patrons—the Fascist Party before the war, the Church and the Roman aristocracy afterward—were anathema to the left-leaning culturati. This book, illustrated with beautiful period photographs, attempts to jump-start a reevaluation and bring Moretti's work to a larger audience. The publication is marred, unfortunately, by Mulazzani's ungainly Italianate English, probably a fault of translation. *A.O.D.*



Geoffrey Bawa: The Complete Works, *by David Robson. New York: Thames & Hudson, 2002, 278 pages, $65.*

The work of Sri Lankan architect Geoffrey Bawa, recipient of the Aga Khan Chairman's Award for 2001, follows in the footsteps of Mexico's Luis Barragan and Egypt's Hassan Fathy in exemplifying Third World architecture at its best. Bawa's buildings in Sri Lanka include houses, hotels, and an assortment of commercial, industrial, educational, and public structures, including Sri Lanka's New Parliament building (1979–82). From the late 1940s onward, as the world sped toward modernization, Bawa's architecture fused Modernist principles with indigenous traditions, environmental awareness, and regional appropriateness. In a rare interview in 1989, he said, "I have begun to think that regionalism is what happens automatically, coming out from the needs of the place … If you take local materials and the general feel of the place into account, the resultant building automatically becomes regional." If he was a regionalist before that term came into common use, Bawa was also a green architect before the moniker was coined.

Bawa was born in 1919 in multiethnic but socially stratified colonial Ceylon. He practiced law in England and Sri Lanka before turning to architecture in his 30s. David Robson, a friend of Bawa's and a professor of architecture at the University of Brighton, U.K., intended to write this book with the architect, but his plan was thwarted when Bawa had a severe stroke in 1998 that ended his career. Continuing alone, Robson's intention was to "shed more light on Bawa's complex personality" and to place his work in perspective. Well-written and well-produced, the book adds to and updates Brian Brace Taylor's 1990 and 1996 books on Bawa. The opening chapters set the scene, filling us in on the architect's early life and the history of Sri Lankan architecture. Robson ties the architect's evolution to key periods of political and economic development in Sri Lanka. The author shows Bawa evolving from a Tropical Modernist, to a regionalist, to an architect of the state, to a "grand designer."

In the end, Robson writes, Bawa's "commitment to Modernist ideals has enabled him to find new ways to resolve the contradictions inherent in the dialogue between the local and the global." *A.O.D.*

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Of blobs, bridge engineers, green building, and photography: A potpourri of spring shows

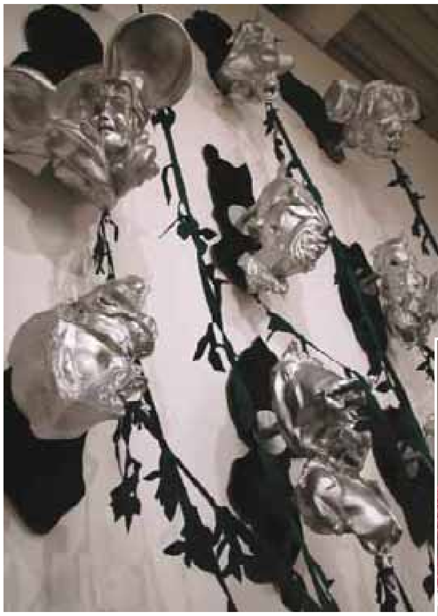
Exhibitions

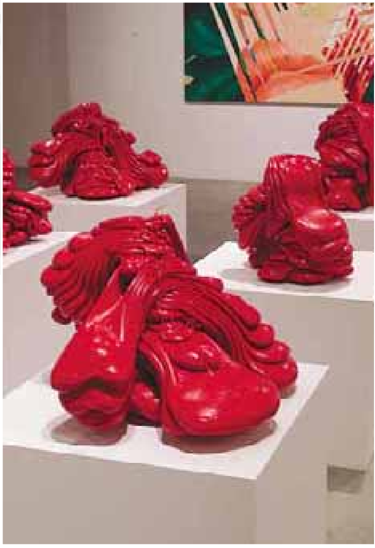
Intricacy. *Curated by Greg Lynn. At the Institute of Contemporary Art, Philadelphia, through March 30, 2003.*

With the recent exhibition *Intricacy* at Philadelphia's Institute of Contemporary Art, Greg Lynn, the show's curator as well as the architect most associated with the biomorphic buildings often called "blobs," reveals himself to be surprisingly old-fashioned. After all, the show isn't about theory, but aesthetics: As he writes in the accompanying catalog, his subject is "surfaces and their articulation through subdivision, modulation, panelization, structure and massing. The most obvious connections between the works," he adds, "are formal." Even more surprising, most of the works of art chosen to complement the architectural models are paintings and sculptures, not installations. One of the few conceptual pieces, Roxy Paine's *Case #11* (1998), is a specimen cabinet filled with polymer blobs, labeled, for example, "EBMA" and "CCC" (these turn out to refer to "explosive bulbous multiple appendages" and "creamy clustered convoluted"). Paine has produced, essentially, a field guide to blobs—a reminder of the difficulty of categorizing irregular forms, as opposed to, say, circles and squares.

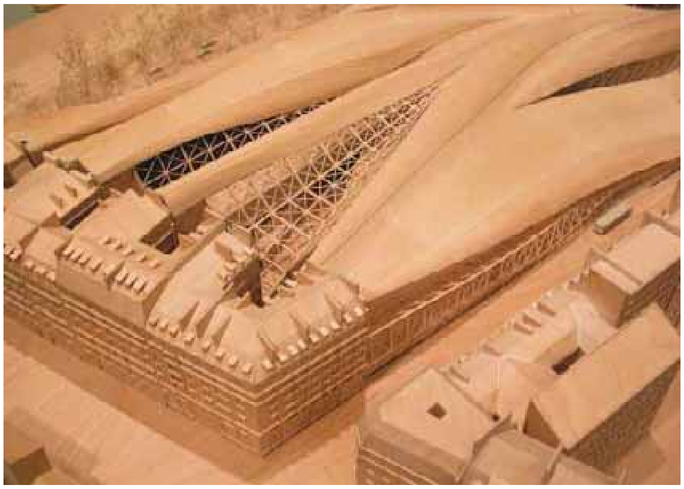
Paine's display case is Lynn's show in microcosm. The California-based architect, a globe-trotting lecturer currently teaching at Yale, UCLA, and the University for Applied Arts in Vienna, has gathered together artworks and architectural models and assigned them to three categories. First are objects made of separable parts: If the parts are identical (think bricks or latticework), Lynn calls the resulting objects "aggregations"; if the parts are different, he calls them "assemblages" (with a nod to art historian Rosalind Krauss and others). In the art category, the aggregation that makes the strongest impression is Tom Friedman's *Untitled* (2002), a cube composed entirely of packing peanuts. On the architecture side is Office dA's plan for a pavilion in Tongxian, near Beijing, in which brick walls become miraculously plastic.

Lynn's third category focuses on true blobs—"parts that are inextricably smoothed together and fused," creating nondivisible forms. Here Lynn focuses more on art than on architecture, not surprising given the difficulty of creating buildings that look like puddles or intestines. Eisenman's 1999 proposal for the Quai Branley Museum in Paris, in which 19th-century buildings seem to melt or morph into undulating appendages, produces an effect, Lynn writes, like that of "a pastry chef, smoothing frosting with a knife"—which is infinitely easier to achieve at model scale than at 1:1. Lynn writes, "Disavowing the disjunction of collage, intricacy privileges fusion by either superimposition or surgical connections along edges." But issues like cost, gravity, and sustainability lead, in the real world, to collage (or worse)—think of Steven Holl's Simmons Hall at MIT (this issue, page 204), where the joints





Intricate objects: Bonnie Collura's *Skywalker* (above), a mixed-media installation with references to fairytale and mythic characters; Roxy Paine's *Scumak* series (right), expressions of art making; Peter Eisenman's proposal to connect the buildings of Paris's Quai Branley Museum (below).



PHOTOGRAPHY: © BONNIE COLLURA (TOP); ROXY PAINE AND JAMES COHAN GALLERY (MIDDLE); EISENMAN ARCHITECTS WITH FANUELE ARCHITECTE (BOTTOM)

between rectilinear and organic forms are, at best, awkward. Even the heralded Korean Presbyterian Church of New York, designed by Lynn with Michael McInturf Architects and Douglas Garofalo Architect, consists of several blobby forms mounted, not always gracefully, onto a rectilinear building. Technology, alas, can't turn packing peanuts into peanut butter. This is no doubt disappointing even to Lynn.

The show doesn't focus on the issue of technology, which Lynn has delved into in much of his previous work. How these buildings will be built is a subject for another exhibition (of the architectural works in the show, only one is completed and two are under construction). Lynn's goal was to open a dialogue between artists and architects about a shared aesthetic impulse, and at that, he has succeeded. *Fred Bernstein*

The Art of Structural Design: A Swiss Legacy. *Curated by David P. Billington. At the Princeton University Art Museum, Princeton, New Jersey, through June 15, 2003.*

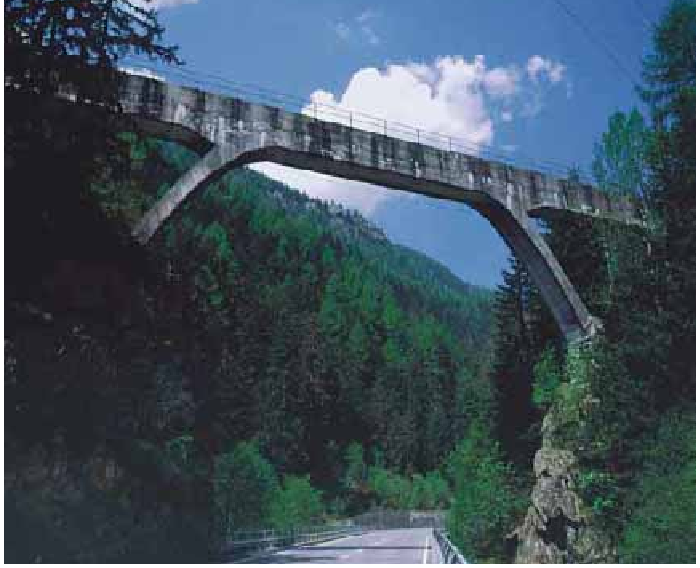
In 1947, the Museum of Modern Art in New York City lauded the artistry of Swiss bridge engineer Robert Maillart (1872–1940) with a one-man show. More than 50 years later, Princeton engineering professor David P. Billington has organized an exhibition of models and images that pays homage to Maillart and three of his countrymen—Othmar H. Ammann (1879–1965), Heinz Isler (b. 1926), and Christian Menn (b. 1927)—for contributing to the beauty of the built environment.

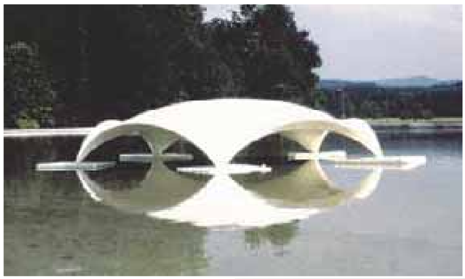
The work of these four engineers is widely hailed as the most revolutionary structural design of the 20th century. Maillart's hollow-box concrete construction for bridge decks, for instance, is now a standard design technique—but it was as innovative in his day as the achievement of Gehry's curvaceous Bilbao was in the mid-1990s. Ammann's oeuvre includes nearly every bridge crossing into New York City from New Jersey and Long Island; Isler's work in thin-shell concrete created an entirely new structural form; and Menn's most recent project, the Bunker Hill Bridge in Boston, is becoming a Beantown icon (although Menn is said to dislike the final design, which has shorter towers than he envisioned).

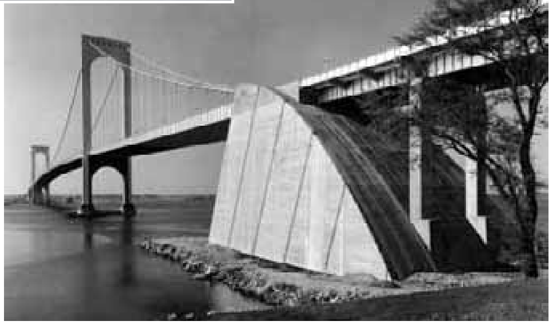
All four men studied at the Federal Institute of Technology (ETH) in Zurich, and Billington says this institution has had a seminal influence on the education of engineers. Billington himself is a pioneer in this regard: In 45 years at Princeton, he has reintroduced the humanities into engineering education, a connection that has largely been lost as the profession has become increasingly focused on methods of technical analysis. "Engineers, and especially academics, often argue that aesthetics are not part of their profession. One major objective of education in engineering should be to encourage students to see, accept, and begin to use that elemental sense of aesthetics," Billington writes in his book that inspired the show and shares its title.

In fact, the exhibition doesn't quite hold its own without Billington's book, which is mounted page-by-page alongside the models, built by his students. Particularly compelling in the exhibition are Isler's exquisitely illustrated technical notebooks.

The twin goals of the structural engineer—to create strength and to minimize weight—are challenges of the highest order. Billington's show and the accompanying book firmly establish the four featured engineers as masters of form and function, and make the case for regarding structural engineering as an art form in its own right. *Deborah Snoonian, P.E.*







Maillart's award-winning Chatelard Aqueduct (above); a thin-shell concrete canopy by Isler (left) sits atop the roof of his building; Ammann's spare, modern Bronx-Whitestone Bridge (below).

PHOTOGRAPHY: © PRINCETON UNIVERSITY ART MUSEUM AND MANCIA/BODMER FBM STUDIO, ZURICH (TOP); HEINZ ISLER (MIDDLE); METROPOLITAN TRANSPORTATION AUTHORITY, NEW YORK (BOTTOM)

Assignment GREEN: A Survey of Eco-Design Education in New York, 2003. *Curated by David Bergman and Erika Doering. At the Municipal Art Society, New York City, through April 29, 2003.*

Earth-friendly clothing rubs shoulders with product designs and architectural models at this showcase of student work from eight schools in New York City. The show was the brainchild of O2NYC, an ad hoc, multidisciplinary collective of designers to which curators David Bergman and Erika Doehring belong. The two teach at Parsons School of Design and the Pratt Institute, respectively.

Bergman advocates what he calls "transparent green design," which avoids typical aesthetic connotations such as craftsy, handmade appearances or straightforward reuse of discarded materials. The work in this show is not transparent, as little green design is yet—but the products do show imagination, a primary measure of success for student work of any stripe.

As is often the case, the most thought-provoking green projects involve urban studies and landscape. The best example is a project undertaken by students at City College, who analyzed the historic ecological "footprint" of cities of a million or more residents, including Tokyo in 1760 and Cairo in 1927. The data they collected can be used to study current patterns in large urban areas, with an eye toward minimizing local environmental impacts.

The show's intent is to raise awareness about sustainability in education in hopes of fomenting a center of green-design excellence in New York. That O2NYC managed to mount an exhibition from so many disparate sources is to be commended; that the show indicates progress toward its intended goal is even better news. *D.S.*

Thomas Struth. *Curated by Maria Morris Hambourg and Douglas Eklund, at the Metropolitan Museum of Art, New York City, through May 18, 2003.*

By photographing buildings and streets, Thomas Struth transcended the role of architectural photographer to become the creator of contemplative portraits of urbanism, globalization, and architectural spectacle. Over several decades, Struth has developed a method of making familiar sights fresh, causing viewers to look more closely at what they take for granted. While this retrospective explores Struth's vast range of subjects, his recent images of urban architecture suggest he is returning to his original interest in photographing streets.

A student of renowned Düsseldorf Academy teachers Bernd and Hilla Becher, Struth developed an analytical approach to photographing architecture with his early black-and-white images of New York City and of European cities. His photographs chart the cities' decay and renewal, conveying the mood and culture of the locales. Struth has since explored other subjects, such as people who flock to museums and monuments in his famous series *Museum Photographs*. Even though the images focus on the people at these cultural sites, Struth's photographs study the act of observation with the same dispassionate eye that charts his inanimate subjects.

Perhaps Struth's greatest gift is his ability to analyze the way people observe their surroundings. The link between an image of a parking lot in Dallas and the pandemonium of New York's Times Square is that Struth sees the importance of reflecting upon a banal environment as well as a spectacular one.

Student projects from *Assignment GREEN*: a curtain created from film canisters (top); furniture made of liana cane from Guyana (above right); and a wall hanging composed of tubing from the textile industry (right).

PHOTOGRAPHY: © SUSANNAH SHEPHERD (THIS PAGE); METROPOLITAN MUSEUM OF ART (OPPOSITE, LEFT); LIBRARY OF CONGRESS (OPPOSITE, RIGHT)

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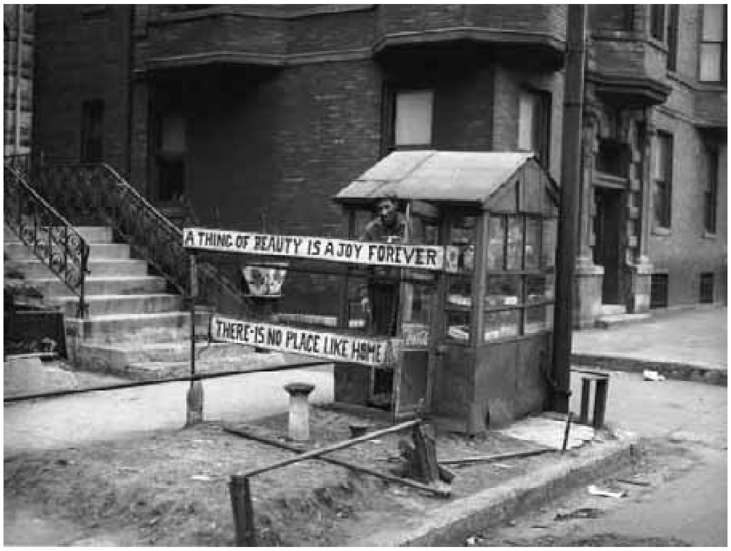
Despite the obvious disparities among his subjects, Struth's photographs all explore the underlying character of the cultures they represent. *Diana Lind*

Bronzeville: Black Chicago in Pictures, 1941–43. *Curated by Maren Stange. At the International Center of Photography, New York City, through May 25, 2003.*

During its nine years of existence, the Farm Security Administration employed some of America's best photographers to document the hardships of living on relief during the Depression. The project resulted in an archive of 200,000 images, some of which are featured in *Bronzeville: Black Chicago in Pictures, 1941–43*, a show that tells the story of Chicago's urban underbelly, African-Americans chasing the American dream, and the architecture that failed to sustain them.

Struth turns a dispassionate lens on Crosby Street in New York's SoHo district.

Thousands of blacks migrated to Chicago in the 1940s, lured by the promise of jobs and a better life. There they found squalid living conditions in the 10-square-mile area then known as Bronzeville. Four photographers—Russell Lee, Edwin Rosskam, John Vachon, and Jack Delano—captured the duality of this place, where a vibrant African-American culture developed despite factors that made simple living a struggle.


A THING OF BEAUTY IS A JOY FOREVER
THERE IS NO PLACE LIKE HOME

Poor living conditions were an unfortunate hallmark of 1940s Bronzeville.

While the exhibition explores all aspects of life in Bronzeville, from nightlife to churchgoing, the core images in the show painstakingly document everyday life in the dilapidated "kitchenette" apartments of the neighborhood. Lovely facades on the main avenues of Bronzeville disguised these cramped, one-room spaces where entire families lived cheek by jowl. Richard Wright once called the kitchenettes a "death sentence without a trial," suggesting not only that the buildings were unsafe, but that they were also an impediment to blacks' growth. Bronzeville is a poignant study in urban planning, a testament that housing remains an essential part of understanding any defining historical moment. *D.L.*

Bob Day, President

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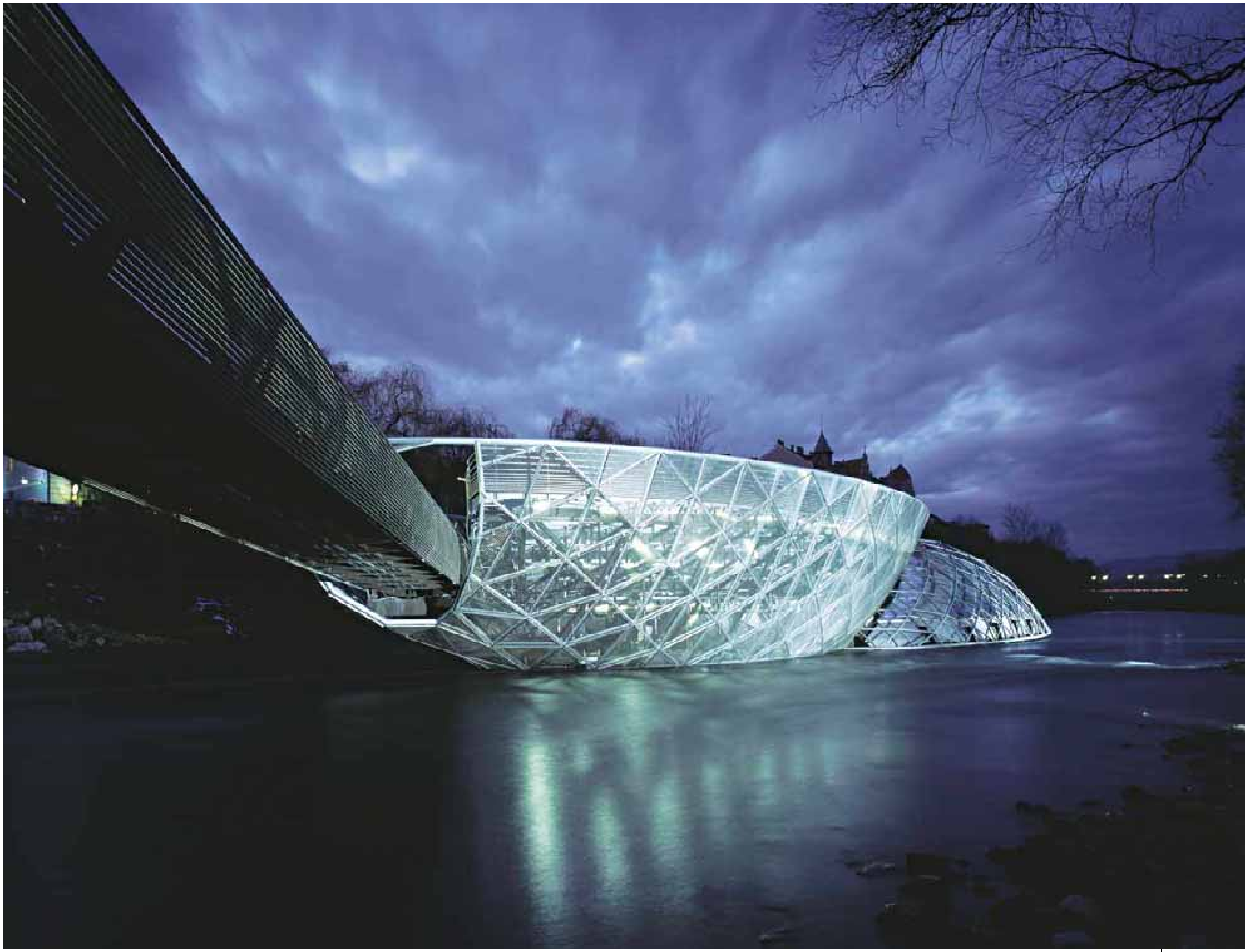


PHOTOGRAPHY: © HUFTON + CROW/VIEW

On the shores of the Mur, a steel and glass plaything

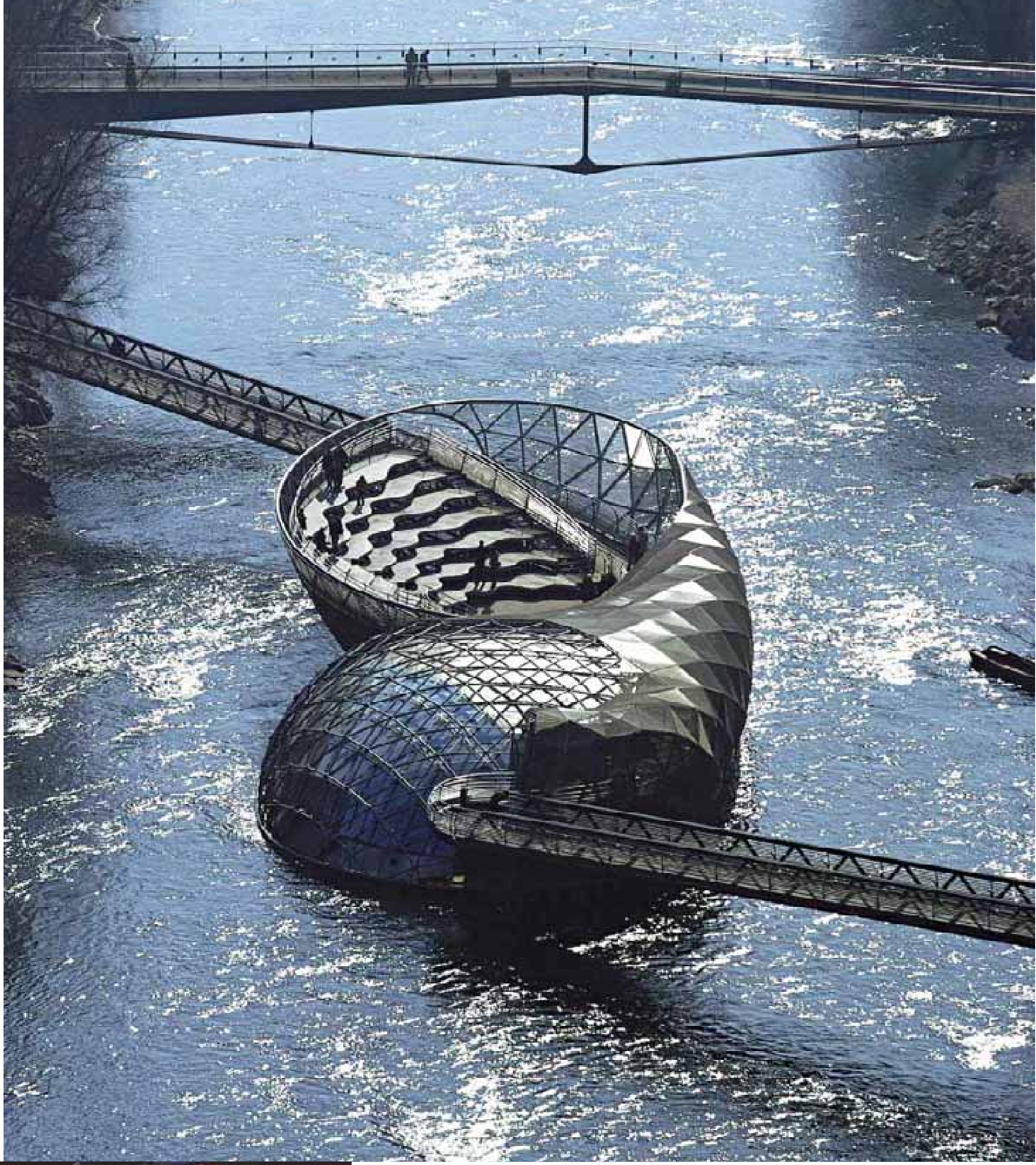
By Diana Lind

Vito Acconci's Island in the Mur defies definition. A convoluted mass of steel and glass connected to the banks of the Mur River traversing the city of Graz, Austria, the island houses an amphitheater, café, and playground, all of which flow into one another. Acconci is quick to point out his design's metamorphic qualities: "The functions are mixed, there's no hierarchy, no boundaries, no separation between inside and outside."

Acconci, a New York–born artist, revels in his disregard for limits. His career has evolved over several decades and includes successful stints as a writer, performance artist, and creator of video installations and participatory sculpture. Most recently, he formed an architecture firm, Acconci Studio, in New York City, which specializes in public-space design and has built projects ranging from a movable garden in Munich to a screened walkway in Tokyo.

The Mur River, long seen as a dividing line in Graz, became a focus of the city's attention when Graz began preparing for its yearlong celebration as the 2003 Cultural Capital of Europe. In 1999, Austrian art curator Robert

While the Mur River surrounds the island, its interior reflects the unstable, free-flowing nature of water. The winding corridors (below left) and the café's curvy furniture (below right) look like waves themselves.



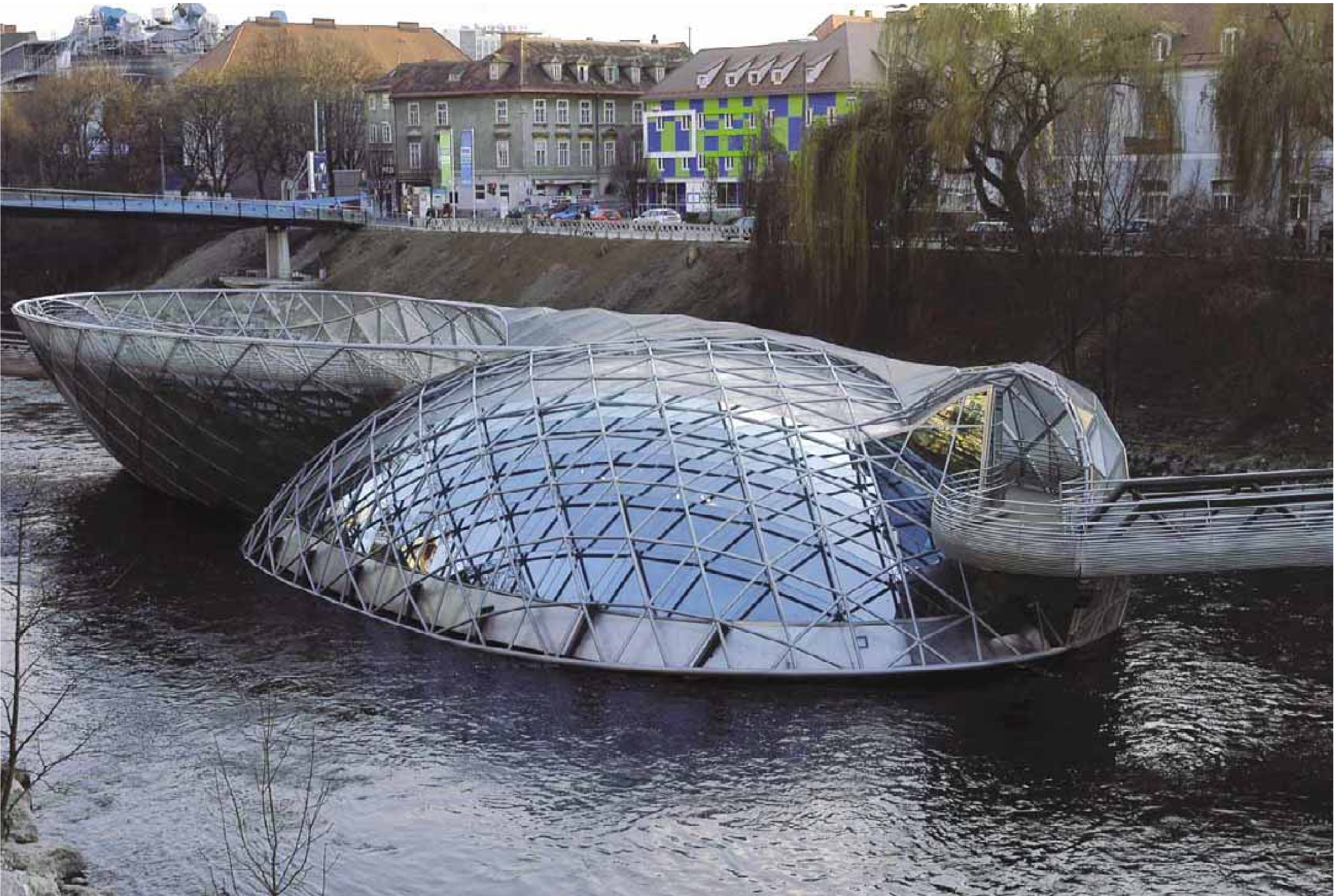
The island offers visitors a new vantage point for viewing Graz. The center of the city can be seen through peepholes in the interior and is reflected on the structure's stainless-steel surface.

PHOTOGRAPHY: © HARRY SCHIFFER (THIS SPREAD), EXCEPT ELVIRA KLAMMINGER (OPPOSITE, TOP)

Punkenhofer proposed the idea of creating an island that would unite the city and change citizens' perception of the river. Acconci was the natural choice for the commission, considering that some of the key elements in his work—movement and evolution—match Graz's own transformation from "Austria's second city" to a renowned center of contemporary art in its own right.

The island's two intertwined orbs, an open bowl and a closed dome, may contrast with Graz's traditional architecture, but they harmonize with nature. Acconci says, "We tried to make an island of water; on the one hand, it would literally carry water, support water—on the other hand, it would be as fluid as water." Originally, Acconci envisioned the island as a contiguous space from both sides of the river that could be entered from underneath the island. However, due to budget constraints, footbridges were used to connect the island to the city and lessened Acconci's goal of "continuity from riverbank to riverbank."

Within this undulating, 320-ton latticework construction, there are many intersections of activities. Visitors can grab a bite to eat, attend a concert, and let their kids amuse themselves, all at the same time or separately. As a new permanent landmark, the island has already enmeshed itself in the fabric of life in Graz and served as the performance space for many of the Cultural Capital festivities. As Acconci notes, "Once an architecture moves, then it becomes generative; it enters the field of biological processes, it grows the way a city grows." ■



American Institute of Architects
2003 Honor Awards

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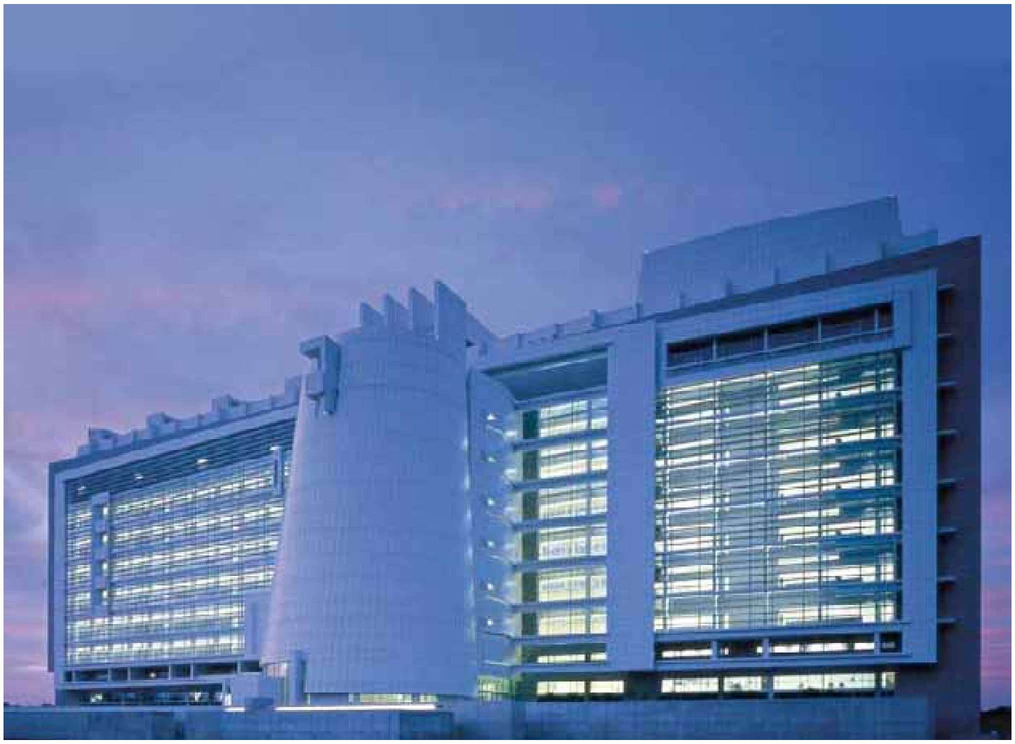
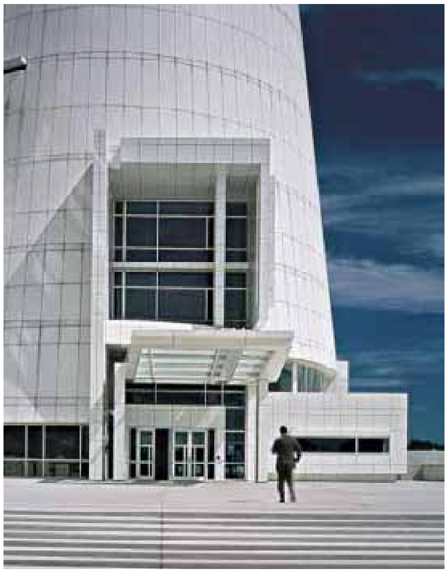
This year's AIA honor award winners offer a diverse feast of form, image, color, and light. To enrich our understanding, RECORD *solicited the views of expert critics Mark C. Taylor, Cynthia Davidson, and Greg Lynn. In their insightful commentary, we see considerable debate. Mark Taylor, an eminent scholar of philosophy and religion, speaks about architecture in relation to the emerging network culture of today. Cynthia Davidson, an editor, writer, and critic of architecture, comments on the obsession with image. Greg Lynn, an architect, teacher, and critic, addresses overall trends he discerns as a practitioner. Each observer focuses a particular lens on the subject, coming up with a singular view about architecture in a time of uncertainty.*

Architects today are faced with the uneasy task of looking forward in a time of volatile progress toward a new paradigm, while the lure of nostalgia keeps propelling us back to the past. This year's winners convey their message with clarity and imagination. Morphosis excels with three winning projects, each uniquely experimental. Rand Elliott is a two-time winner with his Modernist Snow Barn (a shed for plowing equipment) and a small print shop for the ImageNet company that uses copy paper for walls. Caples Jefferson Architects' Heritage Health & Housing, Rios Associates' primary schools, and Pugh Scarpa Kodama's Colorado Court apartments all reflect a fascination with surface through whimsical but practical facades. Lee Skolnick's and Brian MacKay-Lyon's industrial materials speak to the prevailing vernacular, and Richard Meier's and Steven Holl's geometric shapes are both innovative and monumental.

While our critics' discussions may help us recognize the complex forces at work in these projects, in the end we all form judgments based on our own likes and dislikes—and this year's winners provide a plethora of opportunities to do so.—Jane F. Kolleeny

ARCHITECTURE





PHOTOGRAPHY: © SCOTT FRANCES/ESTO PHOTOGRAPHICS

Federal Building and United States Courthouse
Central Islip, N.Y.
Architect: *Richard Meier & Partners, Architects; Spector Group*
[RECORD, October 2001, page 114]

Part of GSA's design excellence program, this humane yet grand-scaled courthouse is sited to take advantage of panoramic ocean and bay views surrounding Long Island. A cone-shaped rotunda houses a nine-story-high entry of civic stature. Once inside, visitors pass into a 12-story atrium in the main rectangular volume of the courthouse, which contains the complex's administrative and judicial services and courtrooms.

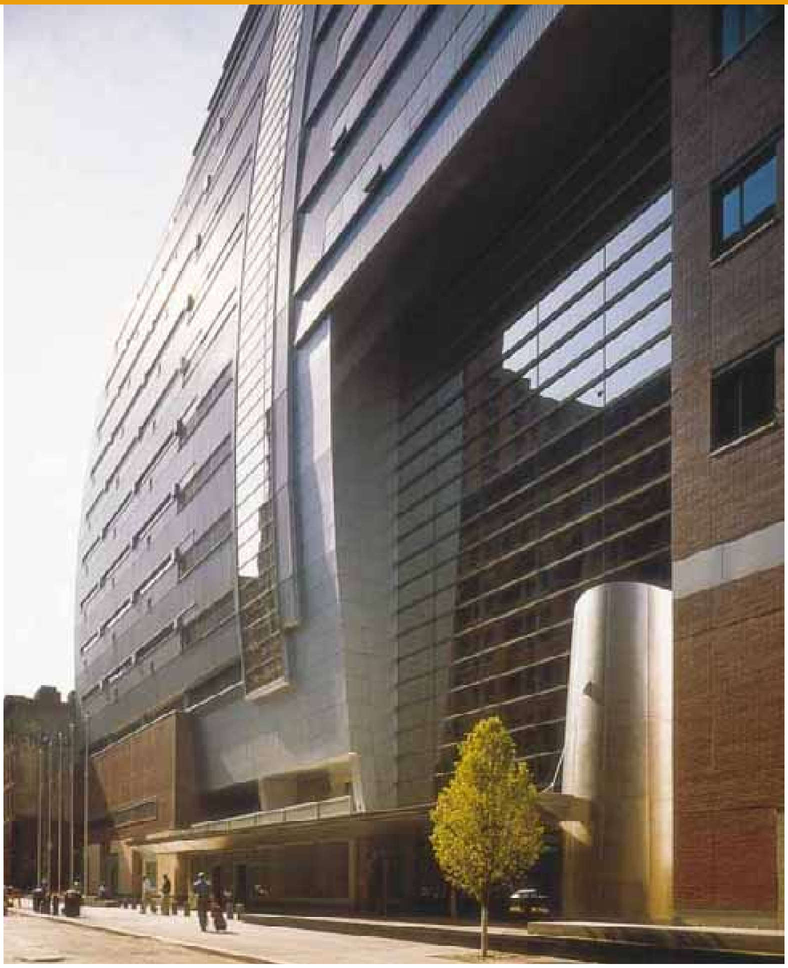
"The classic Modernist articulation of this building creates a proud and regal form, which need not rely on dated archetypes."

PORTRAIT: © A. BLAKE GARDNER

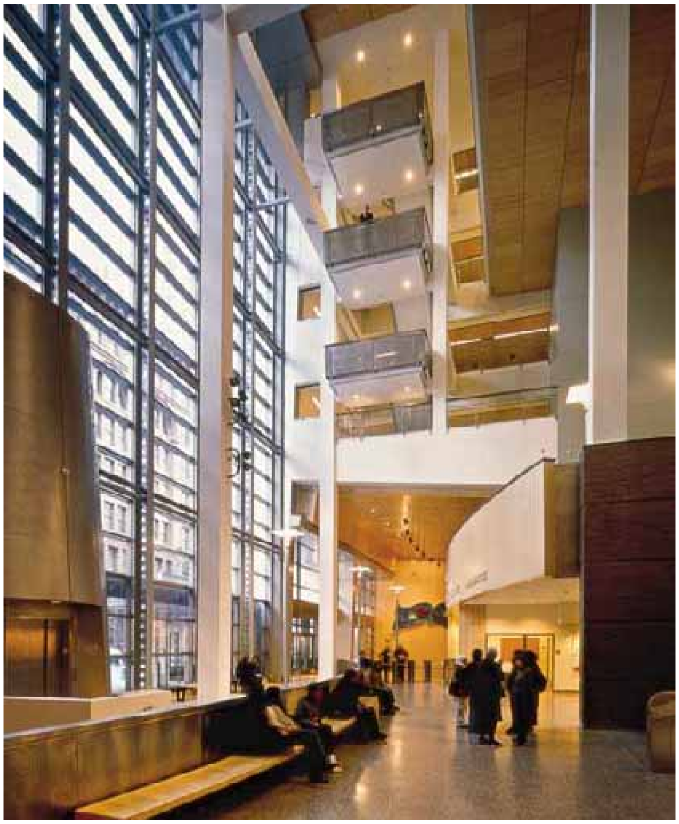
Mark Taylor argues that creativity can be found at the edge of chaos

Mark C. Taylor is the Cluett Professor of Humanities and Religion at Williams College, where he has taught since 1973, and Visiting Professor of Religion and Architecture at Columbia University. Taylor, who has a Doktorgrad (Philosophy) from the University of Copenhagen and a Ph.D. (Religion) from Harvard, published The Moment of Complexity: Emerging Network Culture *in 2002.*

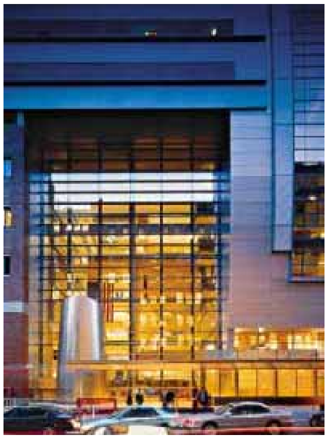
An architecture that is critical for its time must point toward a future emerging in the present. Such architecture is visionary without being utopian. At the cusp of the 21st century, we find ourselves torn between new realities we do not yet understand and old faiths and ideologies that for many promise certainty and security in a world where they are disappearing.



“Cracking open a densely developed building block, this progressive design provides safe, lively spaces for students and faculty.”



New Academic Complex,
Baruch College, CUNY
New York City
Architect: *Kohn Pedersen Fox Associates; Castro-Blanco Piscioneri (associate architect)*

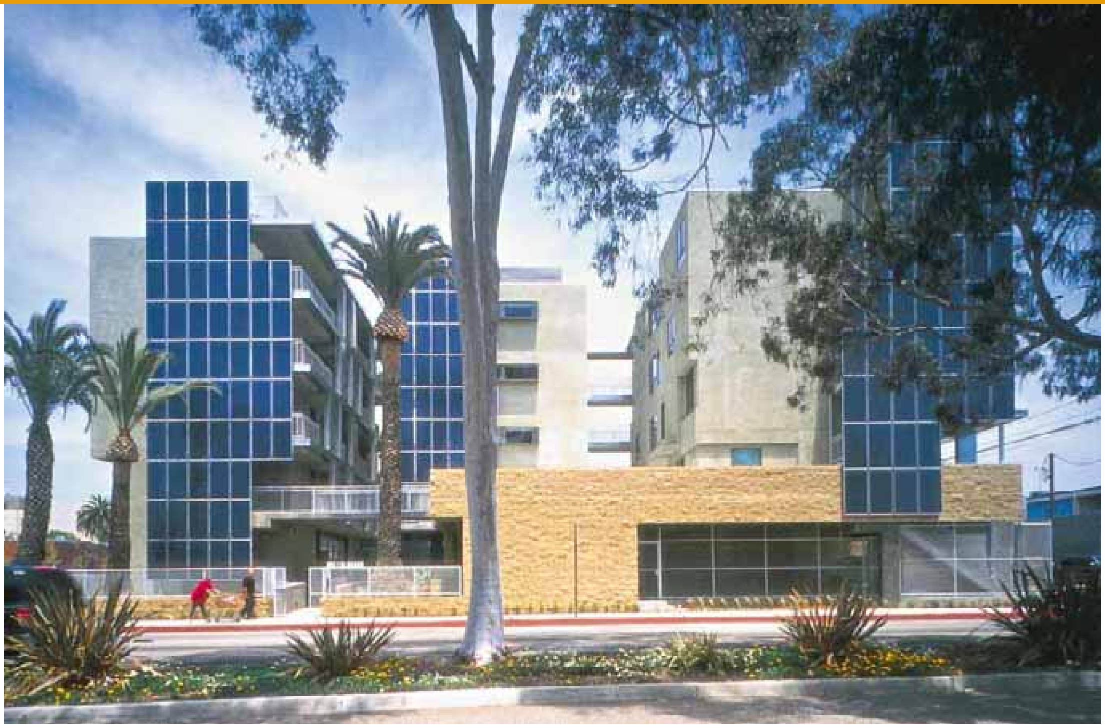


PHOTOGRAPHY: © MICHAEL MORAN

This academic building occupies three quarters of a full city block and serves as the center of a new urban campus. It contains a great central atrium that runs north–south connecting the three dominant parts of the school—the business school, liberal arts college, and the shared social amenities.

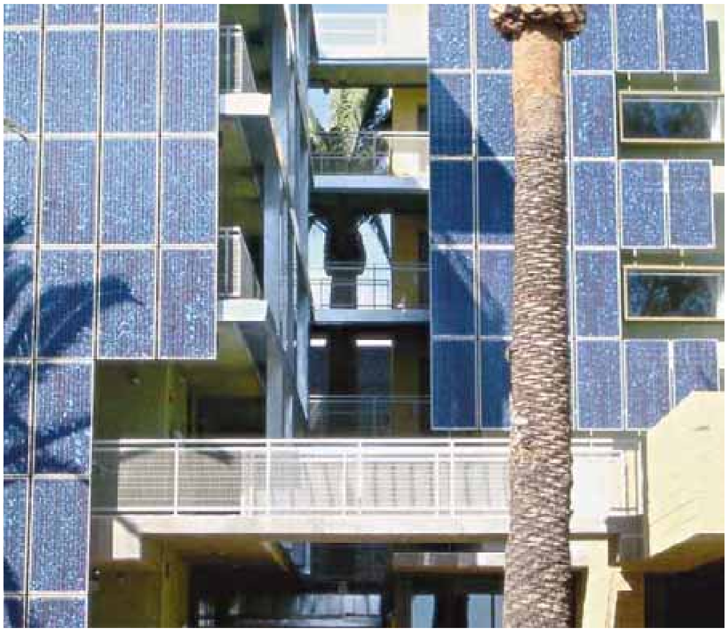
The trajectory of history is marked by increasing interrelations within and among physical, social, political, and economic systems. As connectivity spreads, instability and volatility quickly increase, and disorder threatens to erupt. Such disruption can be destructive, but creativity can also occur at the edge of chaos. The increasing interconnection that defines our era is most obvious in rapidly proliferating media, communications, information, and financial networks. In the way that the grid was intrinsic to Modernism and the industrial age, the network is the structure of an information society. Nonlinear, decentralized, open, and complex networks are not merely virtual; rather, the virtual and the real are braided together to form a new architectural logic beyond information-processing machines. One of the greatest challenges for architects is to create structures and systems that can adapt to constantly shifting sites of emergence.

The architectural projects the AIA has honored this year represent a diversity of styles and approaches characteristic of a period of significant transition. Some architects look back to trusted verities of Modernism, as if the world has not



Colorado Court
Santa Monica, Calif.
Architect: *Pugh Scarpa Kodama*

Even a modest residence of 44 single-occupancy units can exceed conventional standards as a model for sustainable living. This project provides well-designed, affordable housing on an urban infill site in the heart of this beach community's downtown commercial district, reinvigorating the area.

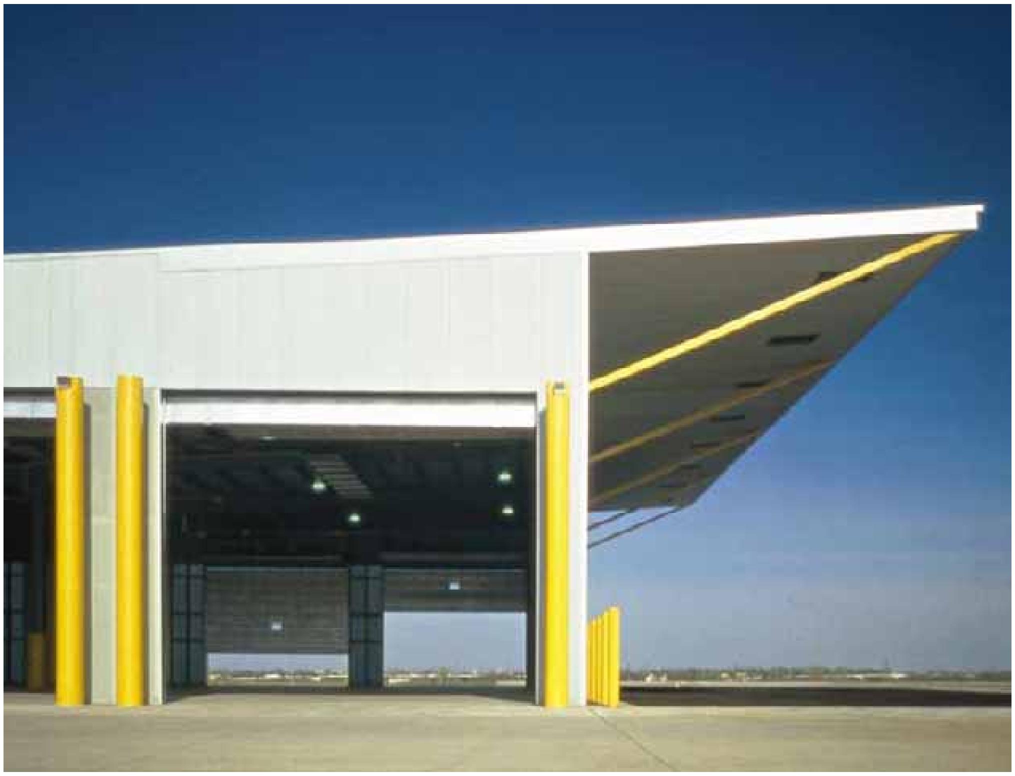


PHOTOGRAPHY: © MARVIN RAND

> **"The photovoltaic panels, rainwater collection, and shading systems are used to aesthetic advantage as integral parts of the architectural composition."**

changed. The Will Rogers World Airport Snow Barn in Oklahoma City, by Elliot + Associates Architects, for example, represents an aestheticized Modernism bordering on the banal. In other cases, Modernism is tweaked without questioning its fundamental principles. Kohn Pedersen Fox's New Academic Complex for Baruch College, CUNY, in New York City attempts to soften Modernism's edge by replacing straight lines and right angles with clean curves and smooth slopes. The result is a building that looks more like a 1950s kitchen appliance than a campus of the 21st century.

Richard Meier and Partners' introduction of a cone-shaped rotunda as the entrance to its Federal Building and U.S. Courthouse in Central Islip, New York, is somewhat more successful in suggesting the potential relationship between curvilinear and rectilinear structures. Moore Ruble Yudell Architects and Planners' revision of certain aspects of Modernism in its BoO1 "Tango" Housing in Malmo, Sweden, effectively brings together the long-standing Scandinavian concerns with progressive public housing and environmentalism. The subtle interplay between interior and exterior spaces,



PHOTOGRAPHY: © BOB SHIMER/HEDRICH BLESSING

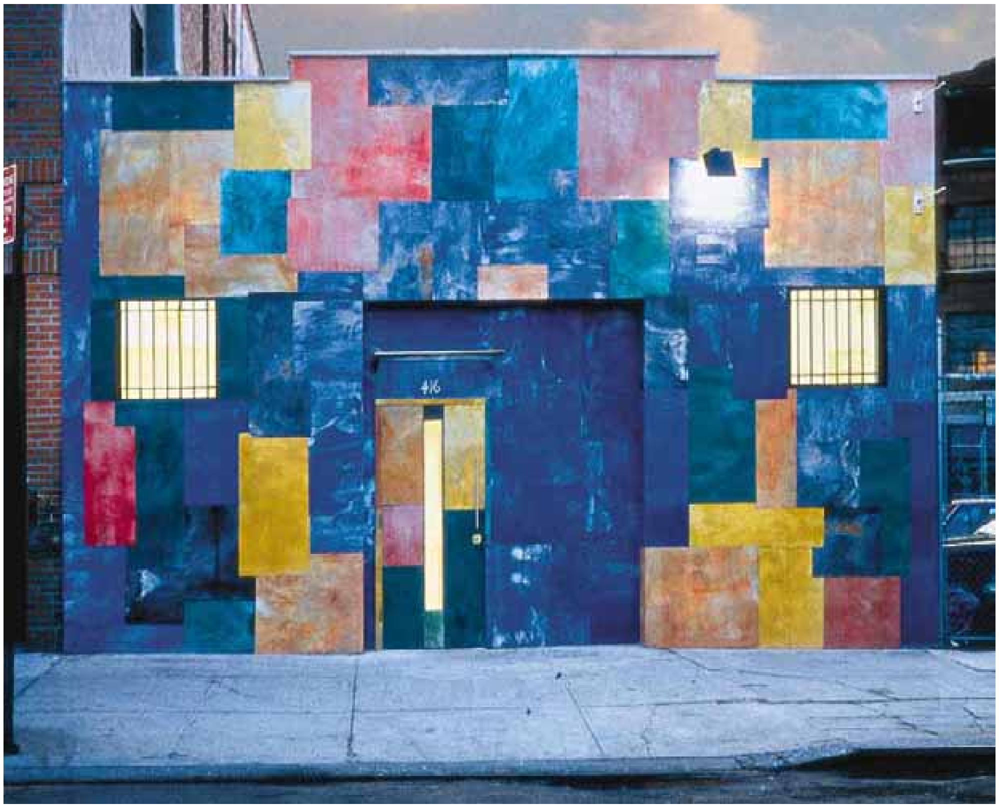
Will Rogers World Airport
Snow Barn
Oklahoma City
Architect: *Elliott + Associates Architects*

This 18,000-square-foot structure is used for storage for airport snow-removal equipment. A secondary portion includes related offices, support functions, and mechanical space. Using standard, economical building systems, the architect transforms them into memorable building forms. The use of vertical elements, structural units, and color presents a kind of Zen approach to animating architectural design.

"The snow barn takes the simplest of forms and programs and turns them into a virtuosity of detail and consideration."

both within the complex and between the complex and its surroundings, achieves a rare sense of integration that extends beyond the merely functional. At a critical moment, however, the architects suffer a loss of nerve. An aversion to disruption has made significant innovation impossible. By thoroughly transforming or even destroying what has been, inventive design disturbs customary patterns and displaces established forms.

Since creative activity is unpredictable, its results cannot be calculated with certainty. Morphosis, which received three awards, has a very sophisticated appreciation for the growing complexity and volatility of our increasingly networked world. As communications systems and financial markets are wired, a new infrastructure takes shape that reconfigures long-established distinctions between space and place, the global and the local, and immateriality and materiality. For Morphosis, the interplay between the virtual and the real transforms physical structures in unexpected ways. The Hypo Alpe-Adria Center in Klagenfurt, Austria, effectively embodies the design of networks in its physical form. In this project, grid seems to morph



Heritage Health & Housing
New York City
Architect: *Caples Jefferson Architects*

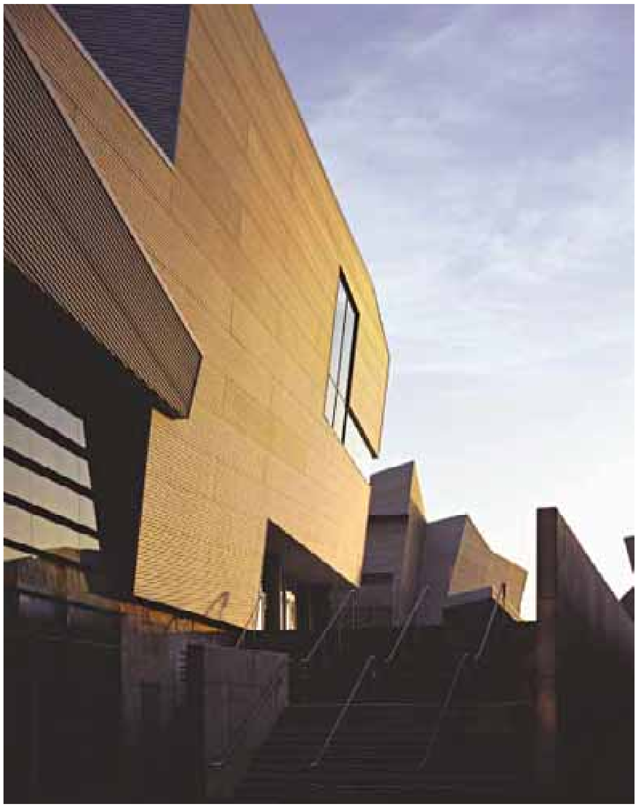
This modestly sized social services facility in Harlem features a colorful and inviting exterior and a cheerful, light-filled interior. The comfortable environment allows employees and the mentally ill and substance abusers they serve a place for reflection, repose, and the cultivation of hope.

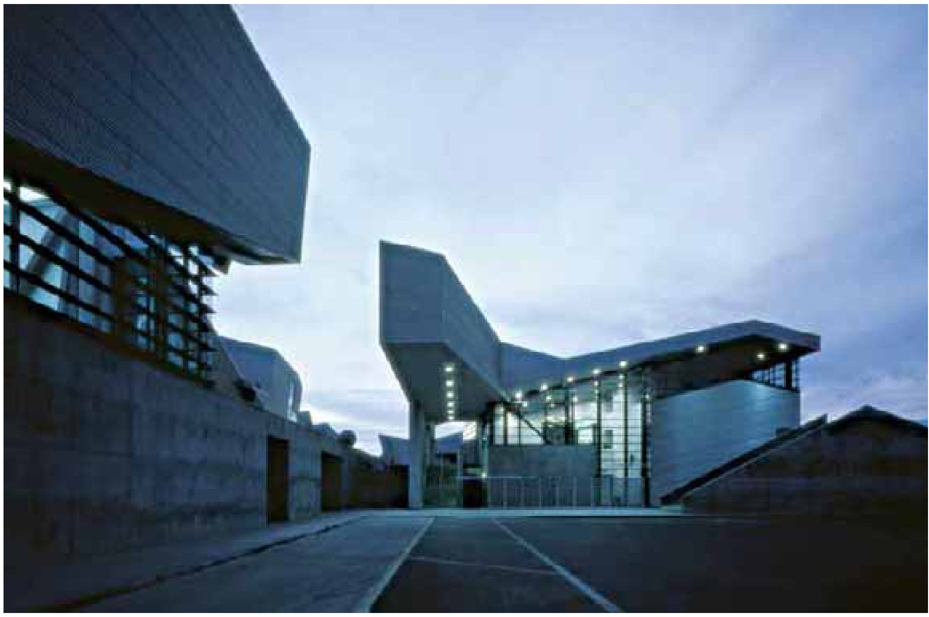
"The most limited resources have been evenly applied, resulting in a bright, colorful, activated piece of work and socialization."

PHOTOGRAPHY: © ALBERT VECERKA; FACADE ART BY NATHAN SLATE JOSEPH

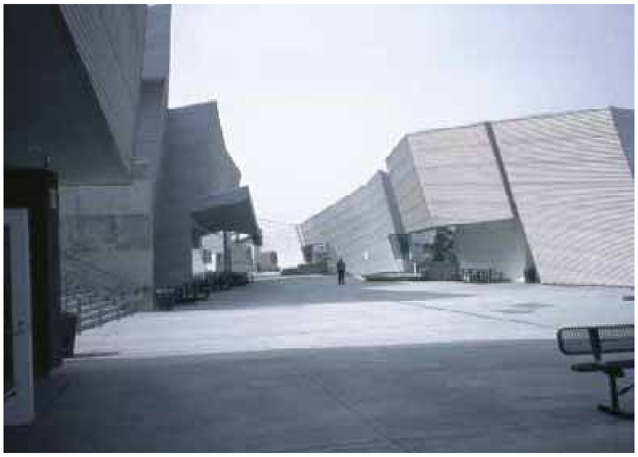
into network to create a decentralized structure whose lines are strangely nonlinear. The design for the bank's headquarters reflects a world in flux where Morphosis strives "to establish nodes of stability within turbulence." The result is a cacophony of forms and angles, which, like bits circulating in ether, generates a sense of suspension and even levitation. Layered grids cross and crisscross, achieving the effect of a network that seems to be surprisingly mobile. Rather than fixed and secure, this structure opens spaces for circulation in which flow and form remain in constant flux.

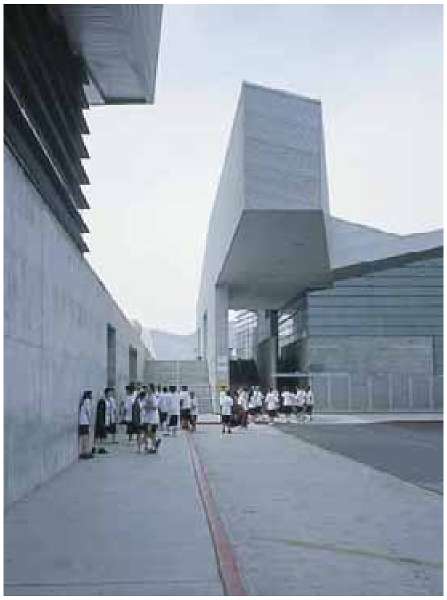
No architect better understands the importance of liminal space—that edge or border that separates and joins—than Bernard Tschumi. For more than 30 years, Tschumi has been exploring ways in which the space "in-between," as he describes it, generates novel forms. The Concert Hall and Exhibition Complex in Rouen, France, is one of his most successful works. Bringing together opposites usually held apart, Tschumi creates a complex building that is both provocative and productive. The horizontal, glass-and-steel exhibition wing and the curved steel cladding of the concrete





“This building disproves all those who say that progressive architecture cannot be realized under the guidance of a public school budget.”





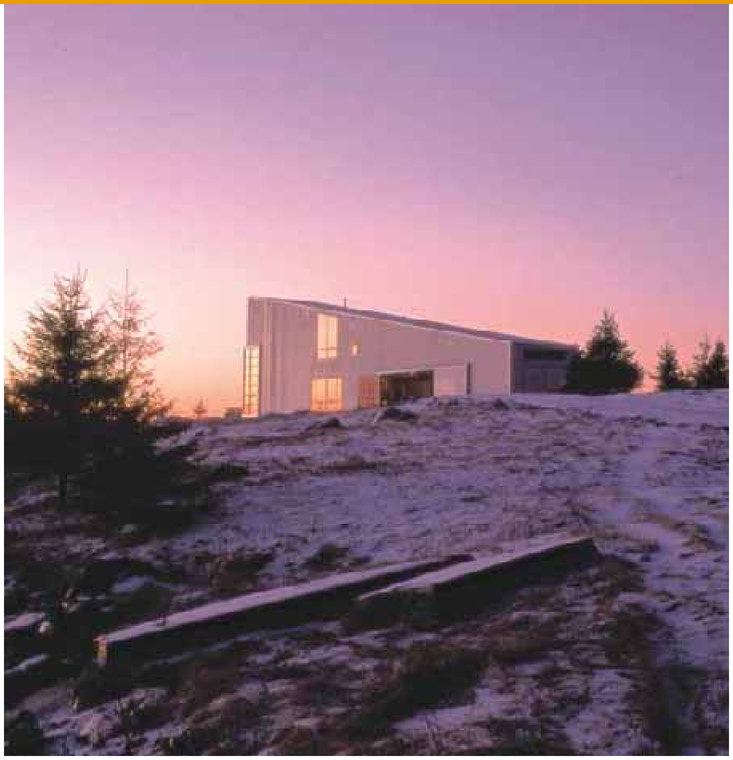
Diamond Ranch High School
Pomona, Calif.
Architect: *Morphosis; Thomas Blurock Architects (associate architect)*

Buildings, athletic fields, parking lots, and open spaces are so successfully melded with the rolling topography that the school’s organization emanates from the site. Cantilevered volumes project dramatically into space, and roofscapes fold and bend like shifting geologic plates. The plan defines three schools within the whole, facilitating more intimate teaching environments.

PHOTOGRAPHY: © TIM HURSLEY (TOP RIGHT); KIM ZWARTS (TOP LEFT); MORPHOSIS (BOTTOM TWO)

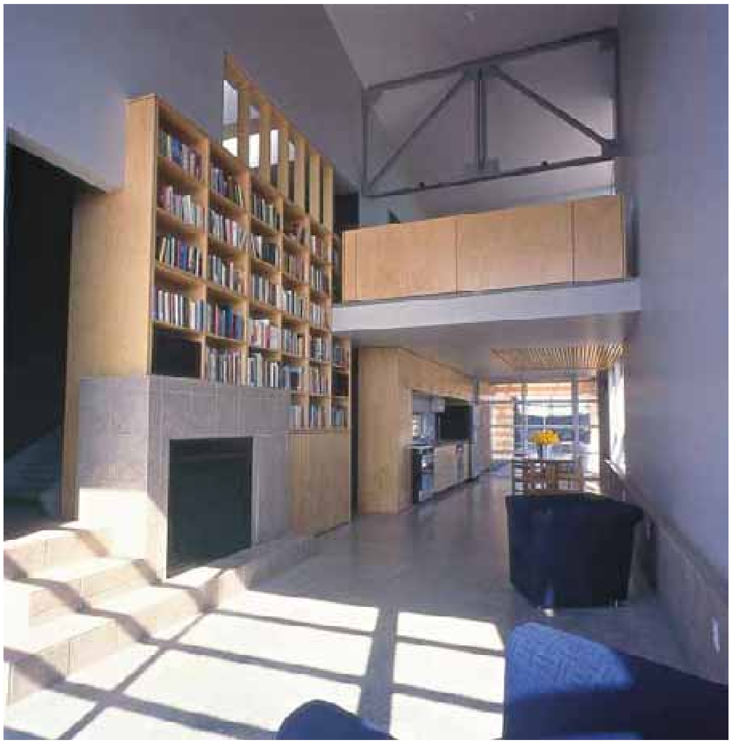
concert hall join to produce a complex whose lack of precise symmetry creates a space for the kind of spontaneous events that have long preoccupied the architect. The most intriguing aspect of the design is the overlapping envelopes surrounding the concert hall, with an inner wall doubled by a fragmented torus. Multileveled walkways cutting dynamically through the lobby are reminiscent of the Piranesian spaces in Tschumi’s Le Fresnoy National Studio for Contemporary Arts in Tourcoing, France (1991). Though the complex is artfully integrated, it cannot be grasped as a whole because Tschumi has succeeded in creating a structure that is virtually all edge.

Like Morphosis and Tschumi, Steven Holl is fascinated by sites where borders become permeable. In Simmons Hall, a dormitory at MIT, in Cambridge, Massachusetts, he uses the image of a sponge to develop a new building morphology. The boundaries separating inside from outside as well as the vertical and horizontal dimensions of the project are porous. This porosity forms a complex structure in which walls not only divide and separate, but also connect and relate so that



Howard House
West Pennant, Nova Scotia, Canada
Architect: *Brian MacKay-Lyons Architecture Urban Design*
[RECORD, April 2000, Page 108]

This modest house sits in a field surrounded by sea on three sides, facing a bay that flanks a small village of clapboard houses. Designing with utilitarian building materials, the architect responds to the local vernacular and prevailing harsh weather.



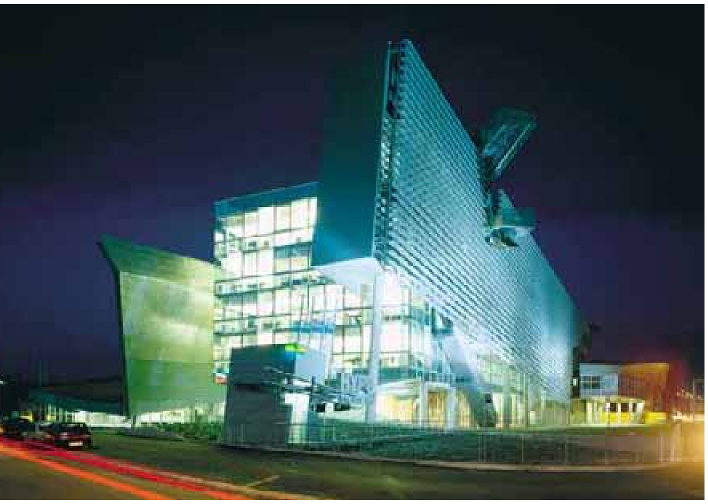
"The tectonic of construction, a beauty of the vernacular, and a purist sense of shelter are all part of this enchanting home."

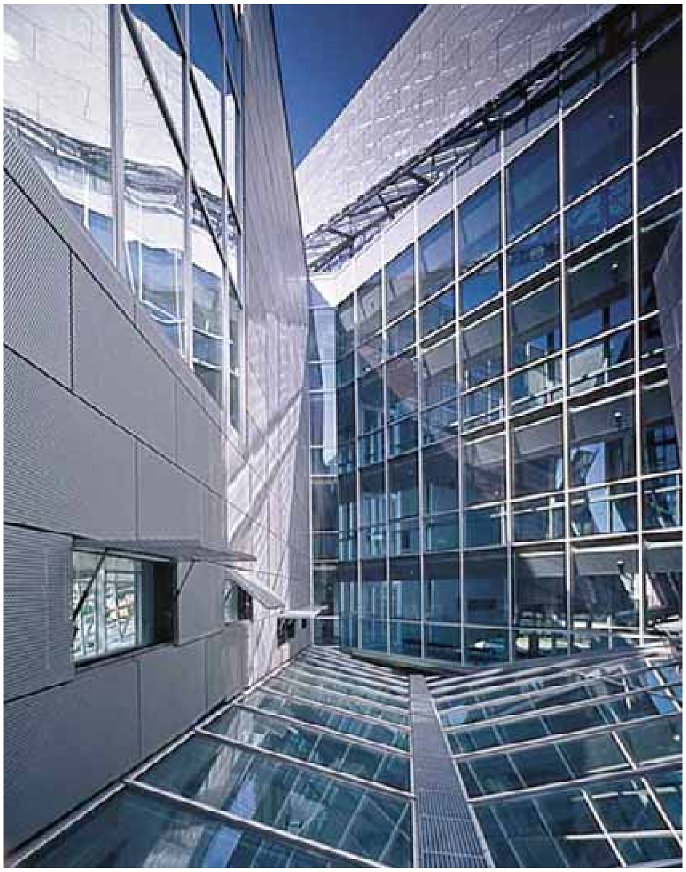
PHOTOGRAPHY: © JAMES STEEVES

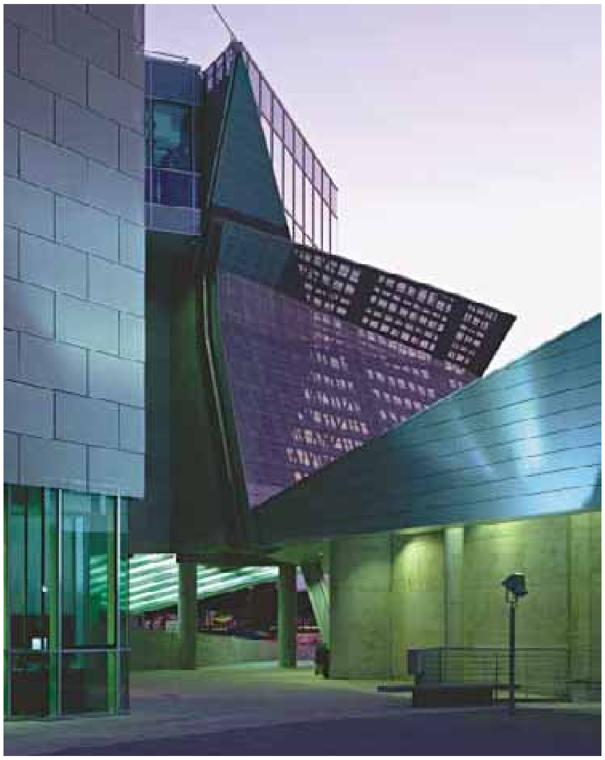
communication among internal spaces, as well as between inside and outside, becomes possible. In contrast to the stasis of the exterior grid of Holl's Simmons Hall, the interior sculptural spaces create a sense of vitality and flow characteristic of living organisms. The way in which biomorphic spaces emerge within the structure of the grid suggests how digital programs generate artificial life, artificial intelligence, and information organisms that are virtually alive.

Since the 21st century will be a world of webs rather than walls, every kind of boundary and border will have to be recast or renegotiated. Far from merely fashioning new visual metaphors for the 21st century, architects must actually create new kinds of spaces with different organizational and operational logics. When long-separated places and systems become connected, the edge of chaos will become the placeless place we are destined to inhabit. In a period of uncertainty and anxiety, it is reassuring to know that some of our best architects are developing maps to help us navigate a strange new territory, one that surely will be as baffling as it is exhilarating. ■

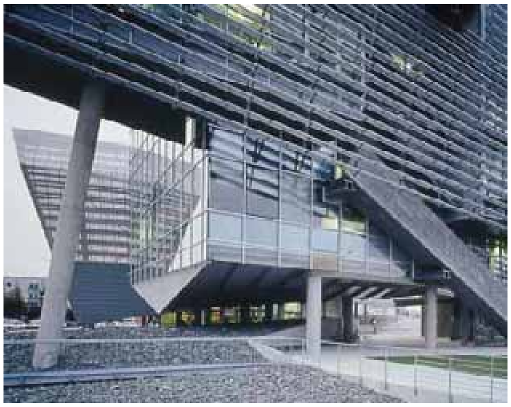
> **"A porous collection of architectural volumes and forms responds to the moderate density of the surrounding suburban landscape."**







Hypo Alpe-Adria Center
Klagenfurt, Austria
Architect: *Morphosis*



Designed as a civic icon for a midsize city in the southern part of Austria, this banking facility responds to its roadway-dominated environment in a complex, sculptural way. Pedestrian movement under and through the building allows assimilation of the site into the suburban pattern. The Minimalist interior combined with exterior finishes create an eclectic mix of moods and volumes.

PHOTOGRAPHY: © KIM ZWARTS (LEFT TWO); FERDINAND NEUMULLER (TOP RIGHT); CHRISTIAN RICHTERS (BOTTOM RIGHT)

PORTRAIT: © LARISSA BABIJ

Cynthia Davidson notes that image and surface-effect dominate awards

Cynthia Davidson is an architecture writer and editor in New York City. She directed the Anyone project of conferences and publications on architecture from 1991 to 2001 and founded ANY (Architecture New York) *magazine in 1993. Prior to coming to New York City, Davidson was the editor of* Inland Architect, *in Chicago, and a Loeb Fellow at the Harvard Design School.*

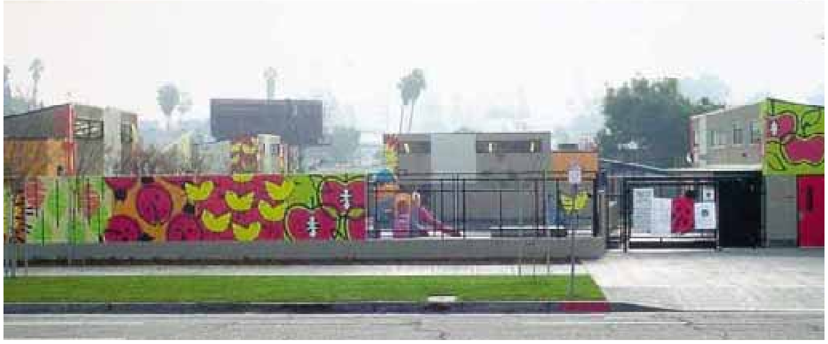
If there are few surprises among the AIA Honor Awards this year, it is because readers of design magazines are already familiar with the projects. From Bernard Tschumi's concert hall in Rouen, France, to Morphosis' Diamond Ranch High School in Pomona, California, images of the "*salle de spectacles*" and the angular school have already instilled in us the idea that these projects

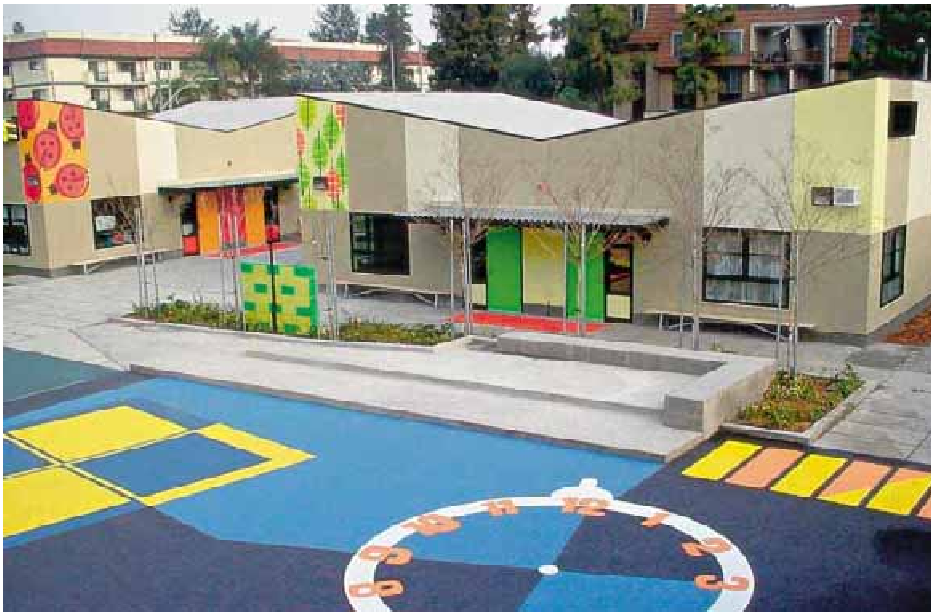
3rd & Benton/7th & Grandview Primary Centers

Los Angeles

Architect: *Rios Associates*

Developed and adapted to two sites, this design of a prototypical primary center for K-2 students was undertaken to reduce overall class size. Using common industrial construction materials, each school, while formally identical, is distinct in its bold graphic expression. Classrooms are paired to allow for window exposure on three sides. Landscaped courtyards provide security and flexible outdoor spaces.





PHOTOGRAPHY: © JONATHAN DEWDNEY

> **"These projects delight the eye, create a wonderful neighborhood scale and exterior spaces, as well as celebrate the texture of the surrounding context."**

are designs worthy of distinction—or at the minimum, provide images worthy of dissemination.

Whether there is a direct link between media exposure and professional recognition cannot be proved here, but media judgment may suggest that surface, material, and form are more compelling than space, if only because space cannot be adequately captured by the image. It can only be apprehended through actual physical experience. Ironically, to prepare this article, I was only able to look at images—that is, photographs and drawings of buildings.

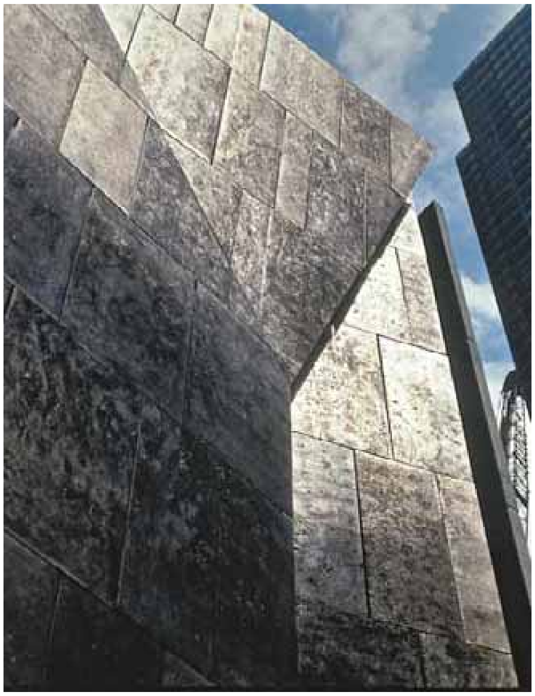
The importance of image in this year's award-winning projects is seen in work as small as Caples Jefferson Architects' Heritage Health & Housing office in New York City, and Elliott + Associates' ImageNet office in Oklahoma City. The first makes the most of "crude construction" and applies a patchwork of color to a flat exterior to enhance, or disguise, an otherwise workmanlike organization of space.

Elliott + Associates created an image for the ImageNet printing company by using reams of paper to make a three-dimensional texture on

American Folk Art Museum
New York City
Architect: *Tod Williams Billie Tsien Architects; Helfand Myerberg Guggenheimer Architects (associate architect)*
[RECORD, May, 2002, page 202]

This narrow, eight-story museum is capped by a skylight above a grand interior star. Openings at each floor allow light to filter into the upper-floor galleries and through to the lower levels, where a store, café, auditorium, classroom, office, library, and archive reside.

"An intricately woven fabric of intimate, vertically organized spaces accommodates users with multiple movement paths."



PHOTOGRAPHY: © MICHAEL MORAN (TOP THREE); PAUL WARCHOL (BOTTOM TWO)

"A project of enormous power that questions the urban landscape at the same time it questions normative ideas of interior space-making."

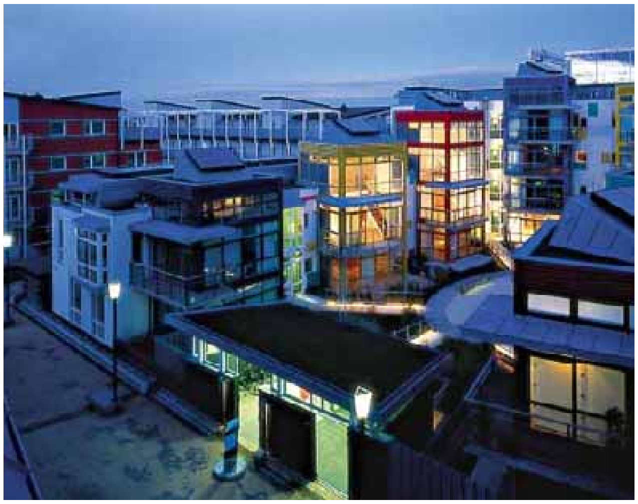
Simmons Hall, MIT
Cambridge, Mass.
Architect: *Steven Holl Architects; Perry Dean Rogers & Partners (associate architect) (page 204)*

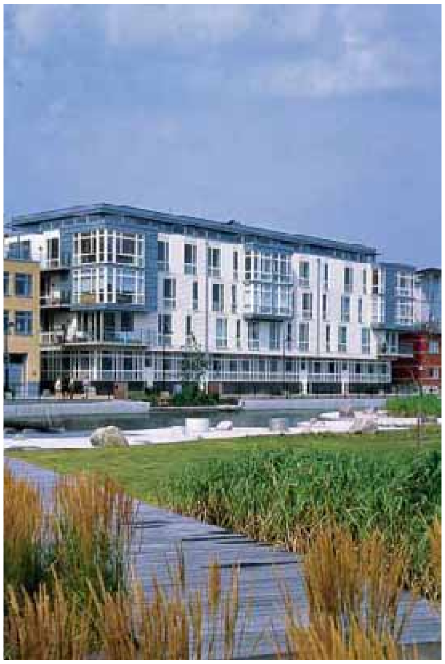
This daring, 350-room dormitory is one of the first steps in the development of the MIT campus along Vassar Street. The building was conceived as a porous, 10-story volume interconnected by social gathering spaces. It explores a variety of unexpected architectural ideas involving scale, color, and light.

the walls. While this amuses the eye, it does not affect the space (though one may not be inclined to lean against the wall). Transparent walls with typographic overlays give some perceptual depth to the working areas, but the typography is so dense that the intent is clearly more decorative than spatial, more about surface than depth, more about the eye than the body.

Layering also appears in Pugh Scarpa Kodama's Colorado Court apartments in Santa Monica, California. Here the "decoration" on the exterior of an otherwise ordinary low-income apartment block is also a technological investment: bright blue solar panels that store the energy used to power the building. This clever display of program through the placement of materials also feels like an attempt to take the mystery out of technology, to lay out the innards the way Apple Computer's translucent iMac provides a glimpse of the gizmos that make bits and bytes happen.

This exposure is far from a new idea. Mies van der Rohe attempted such "honesty" on the exterior structure of his Lake Shore Drive apartments in Chicago (1948–51). But a careful look





Bo01 "Tango" Housing
Malmö, Sweden
Architect: *Moore Ruble Yudell Architects & Planners; FFNS Arkitekter (associate architect)*
*[*RECORD*, February 2002, page 156]*

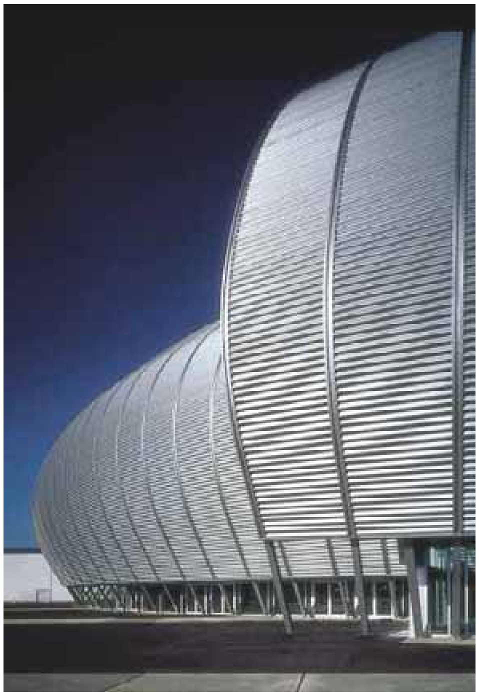
One of 15 multifamily housing projects that compose the first phase of development, this sustainable, low-rise project takes advantage of a publicly sponsored housing exposition to explore new arrangements for apartment living in northern climates. A collaboration between American and Swedish firms, it combines openness to light, landscape, and flexible living with a commitment to industrial materials.

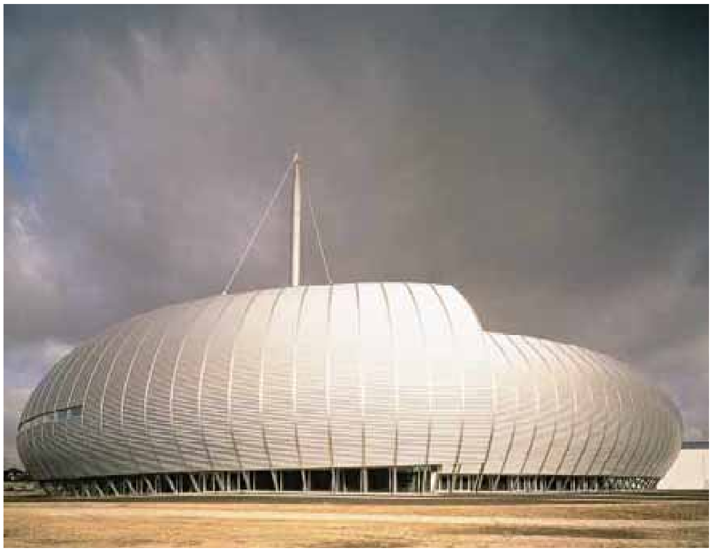
"Displaying a complexity of architectural form, lifestyle, and technology, this emerges as the most adventurous of the Bo01 projects."

PHOTOGRAPHY: © WERNER HUTHMACHER (TOP TWO); PETER MAUSS/ESTO (BOTTOM RIGHT); ROBERT CEASAR (BOTTOM LEFT)

Concert Hall and Exhibition Complex
Rouen, France
Architect: *Bernard Tschumi Architects*
*[*RECORD*, June 2001, page 102]*

Rising from a clearing in a highway-dominated suburban landscape, the 7,000-seat concert hall responds elegantly to its open site and public function. The commercial metal siding and curving vertical trusses of the lobby form a visual foil to the huge, flat-roofed, long-span box that houses the performance area. Inside, the stepped seating and performance floor can be subdivided and transformed by movable seats and curtains suspended from catwalks above.





"The great rounded surface hovers delicately above the ground plane, an icon in the landscape."

beneath the curtain wall revealed the lie. The steel wasn't structure, it was decoration. While the solar panels are both real and decorative, the walls at ImageNet are not made of paper, and the folded and slipped aluminum forms in Valerio Dewalt Train's Gardner-James Residence in New York City are not the ducts that they resemble. They are industrial chic. Does this fact make the space any more or less pleasing to the eye? Any more or less accommodating for the user? No. Because we live in an age of contrived reality that emanates from our televisions, computers, periodicals—and, yes, our architecture.

Back when Wiley Coyote set traps for the Roadrunner, his creators relied on the viewer to unconsciously project the depth of three-dimensional space onto the 2D cartoon to make Wiley's antics more humorous. Today, space is collapsed into the time it takes to bring up a Web site and its invisible depth of information. There is no need for spatial projection or even spatial imagination. Instead, the viewer's complete experience is with surface.

If the superficial has become a satisfying

Lever House Curtain-Wall Replacement
New York City
Architect:
Skidmore, Owings & Merrill; Gordon H. Smith, P.E. (engineer of record)

This 24-story corporate headquarters, with a facade of blue-green glass and stainless-steel mullions, was one of the first glass-walled International Style office buildings in the U.S. Designated as a national historic landmark in 1992, the building's deteriorated steel subframe has been replaced with concealed aluminum glazing channels—a state-of-the-art solution in modern curtain-wall technology, yet it remains identical to the original facade in appearance.

"An important contribution to the preservation of midcentury Modernism that imparts a new beauty to a landmark building."

Boston Public Library, Allston Branch
Allston, Mass.
Architect: *Machado and Silvetti Associates*
[RECORD, January 2002, page 86]

This community library is carefully sited to emphasize its role as a civic building without overwhelming its residential neighbors. Exterior materials include slate panels and shingles and unfinished wood cladding. Large windows on the street and in the courtyards provide ample daylight to the interior.

BOSTON PUBLIC LIBRARY

"The scale of the building and the rich and varied palette of materials allow this library to reside comfortably within the landscape."

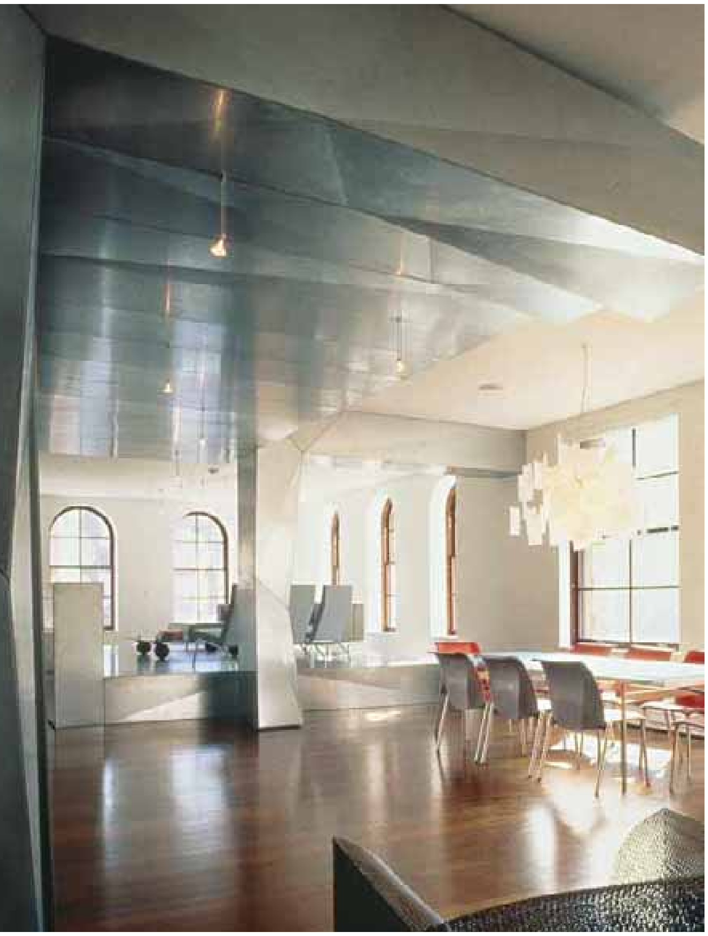
PHOTOGRAPHY: © WHITNEY COX (TOP LEFT); FLORIAN HOLZHERR (TOP RIGHT); MICHAEL MORAN (BOTTOM TWO)

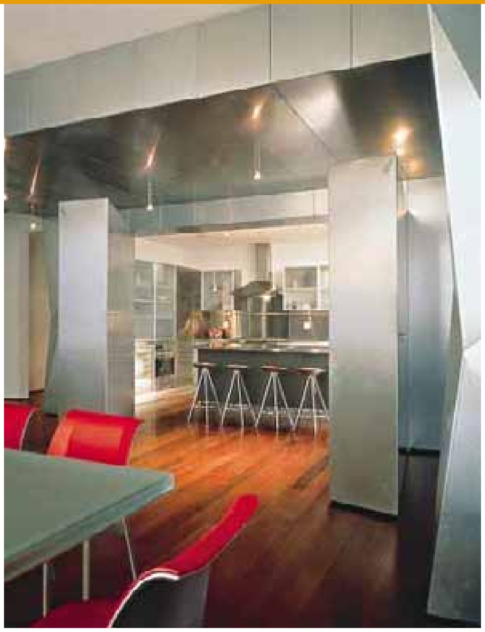
experience, it is no longer clear whether the layers of the Web are emulated in architecture or vice versa. What separates type on a screen from type on ImageNet's glass walls other than space? Architecture's domain is still space, but architects today seem to be promoting sign and image over space at the risk of losing the "media" wars.

Recently I was asked whether the *Deconstructivist Architecture* show at the Museum of Modern Art (MoMA), in New York City (1988)—itself a form of media—had had any long-lasting effects. If the philosophical concept of unpacking the truth was met with outrage (on some fronts), the architectural forms in the exhibition clearly made a long-term stylistic impression. Among the award-winners this year, the most notable evidence is Kohn Pedersen Fox's (KPF) "interior campus" for Baruch College in New York City. A few years removed from KPF's clearly "decon"-styled IBM World Headquarters in Armonk, New York (1997), the mid-rise is an amalgamation of fashionable materials and shapes most probably argued as "contextual." The only

(continued on page 380)

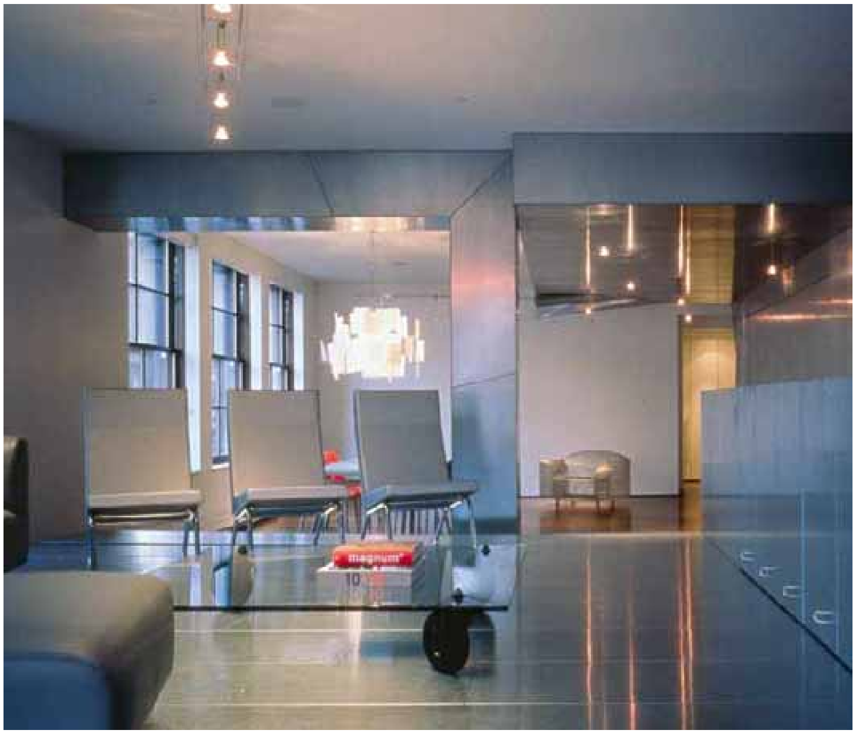
INTERIORS





Gardner-James Residence
New York City
Architect: *Valerio Dewalt Train Associates*

Located in a six-story industrial loft building, this apartment utilizes four metal folds as its movable walls, floors, ceiling, and storage areas. This surprising use of ductwork shows how such a utilitarian material can define the discrete areas of a residential space, as well as become a unique form of art.



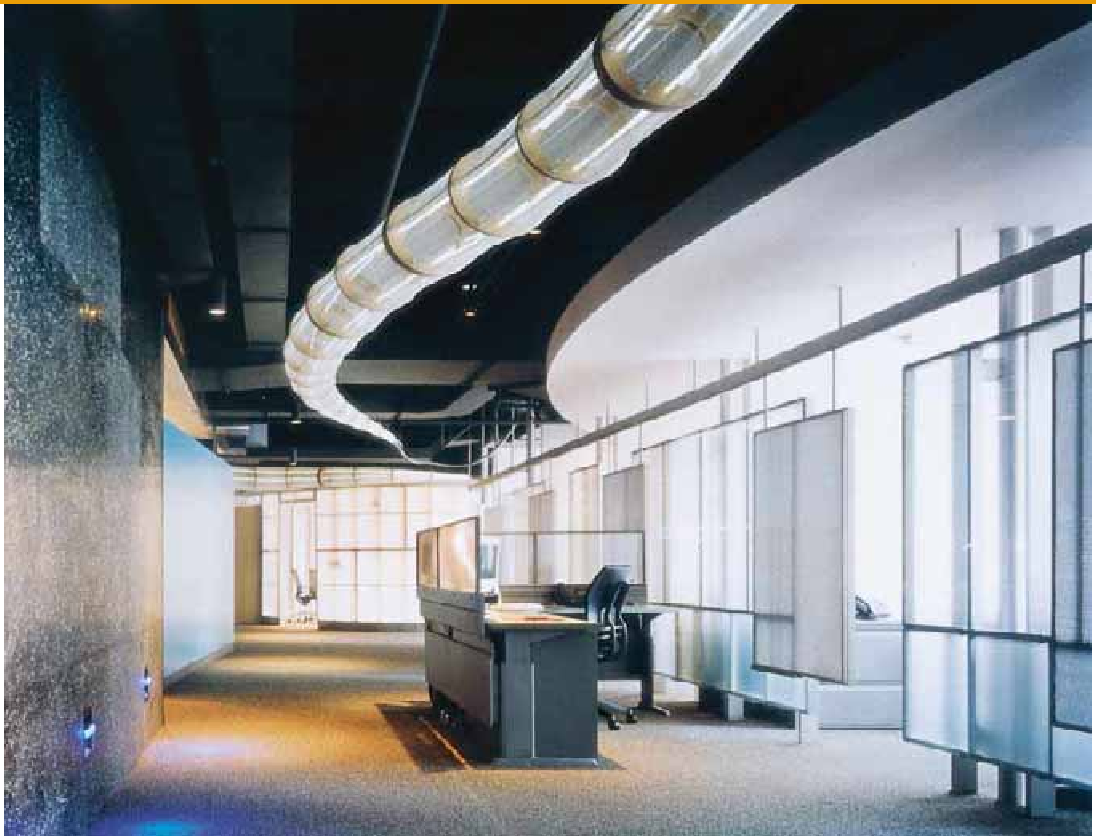
"An alien insertion that's evocative and mysterious; there's an element of discovery that dominates the space in a positive way."

PHOTOGRAPHY: © STEVE HALL/HEDRICH BLESSING PHOTOGRAPHY

Greg Lynn outlines a series of trends seen in various awards

Greg Lynn is the principal of Greg Lynn FORM, in Los Angeles. He teaches at the University for Applied Arts in Vienna, is a studio professor at UCLA's School of Arts and Architecture, and the Davenport Visiting Professor at Yale's School of Architecture. Lynn has two bachelor's degrees, in philosophy and in environmental design, from Miami University of Ohio (1986), and an M.Arch. from Princeton University (1988).

In moments such as these, when the architecture profession rewards itself for greatness through these prizes, and we outsiders are brought in by a magazine to comment on the results, what should we do? Perhaps we serve the community best by simply making gross generalizations and observing tendencies or trends we see in the premiated architectural work.



Global Crossing Corporate Headquarters
New York City
Architect: *Lee H. Skolnick Architecture + Design*

Designed to project an extremely forward-looking identity, these offices embody the tenets of connectivity, speed, security, and cutting-edge technology. Stripped to a bare minimum, the design adds back only what was required to express the spirit and function of a Minimalist work space.

"A corporate space that brings together New Age materials, fiber optics, and plastics to provide luminosity to an otherwise dark shell."

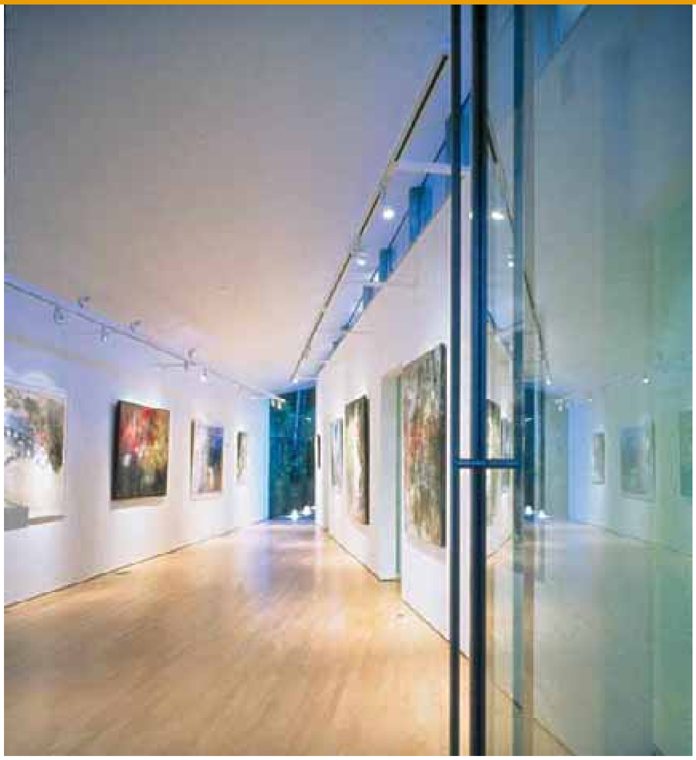
PHOTOGRAPHY: © PETER AARON/ESTO

Thankfully, the interest in warmed-over Modernist architecture for institutional or corporate brands is fading. That said, the one exception to this view is Richard Meier's courthouse in Long Island. It has been so tweaked and tuned that it bears as much resemblance to Corbusian Modernism as Billy Gibbons's chopped low-rider "Cadzzilla" has to a stock 1948 Cadillac. Meier's courthouse is too tricked out with aftermarket customization to be "Modern." But since I prefer the chop-shop to the authentic antique-shop version, I am impressed with the direction Meier's work is taking.

Morphosis's Hypo Alpe-Adria Center in Austria, takes the customization of Le Corbusier's block typology for the Salvation Army in Paris (1930) to heavy-metal extremes. While remaining compositionally controlled in its articulation of stair, signage, and structural elements with the building skin, the project assumes many risks. It is highly fragmented formally, without a strong sense of frontality. It doesn't say "bank." Instead of being monolithic formally or materially, it is variegated and busy. Yet Morphosis's Thom Mayne does pull it all together. The work is not fetishized and over-

Collins Gallery
Los Angeles
Architect: *Patrick J. Tighe, AIA*

Combining the public function of an art gallery with the domestic components of a home, this remodel of an existing structure accommodates the need for privacy as well as room for large gatherings. A new wall bisects the building on the diagonal, creating two distinct zones for gallery and residence. Clerestory windows serve as the main light source in the gallery, eliminating the need for additional windows and maximizing wall surface for art. Sliding partitions of glass close off the domestic zone from the gallery.



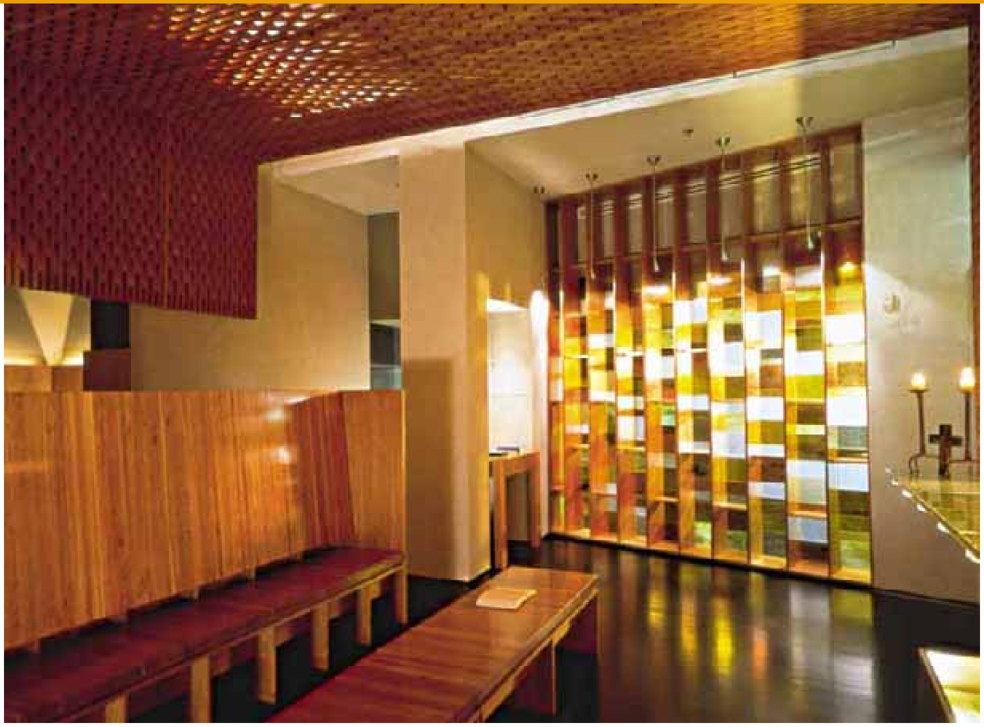
"The unusual geometry of the plan works beautifully for living among the works of art."

PHOTOGRAPHY: © ART GRAY

fragmented—for Mayne makes the shifts from small-scale to large-scale work very well. His projects retain their sense of experimentation even at this institutional scale. In fact, the larger-scale designs are often far superior to more pristine small-scale stuff. Mayne also gets extra mileage from off-the-shelf components, so that they look highly crafted.

Another trend seen in some award-winners is an interest in geologically shaped and constructed spaces, facilitated by a combined research into materials and the advent of new tools for drawing and designing. For example, the American Folk Art Museum in New York City, by Williams and Tsien, is a profoundly geological project, both in the dense sedimentary layering of spaces within the structure, as well as the more literal cladding of its facade with tombasil metal. Another example is Simmons Hall at MIT, by Steven Holl, where a series of interior spaces evoke those of the infamous Narrows in Zion National Park, in Utah.

The last three projects all represent a culmination of years of personal research by the

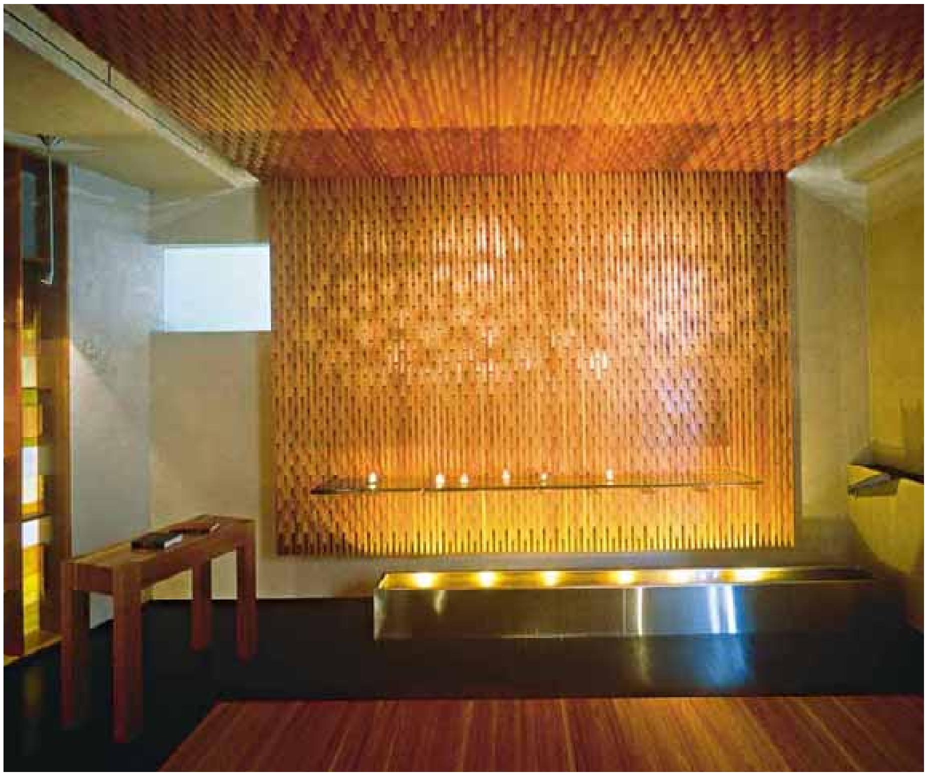


Kate and Laurance Eustis Chapel
New Orleans
Architect: *Eskew+Dumez+Ripple*

This small chapel is designed to serve the contemplative and spiritual needs of Ochsner Hospital's patients, families, and staff. Because the chapel is interdenominational, the architect developed an ecumenical design. The use of wood implies tactile warmth, creating a protective shelter over the main seating area. Water is introduced in a manner that alludes to its healing, life-giving properties. The subtle use of light, scale, proportion, and materials enhances the feeling of sacredness.

"Historically, light has been featured as dominant in spiritual architecture—this project carries on this tradition in a new and fresh way."

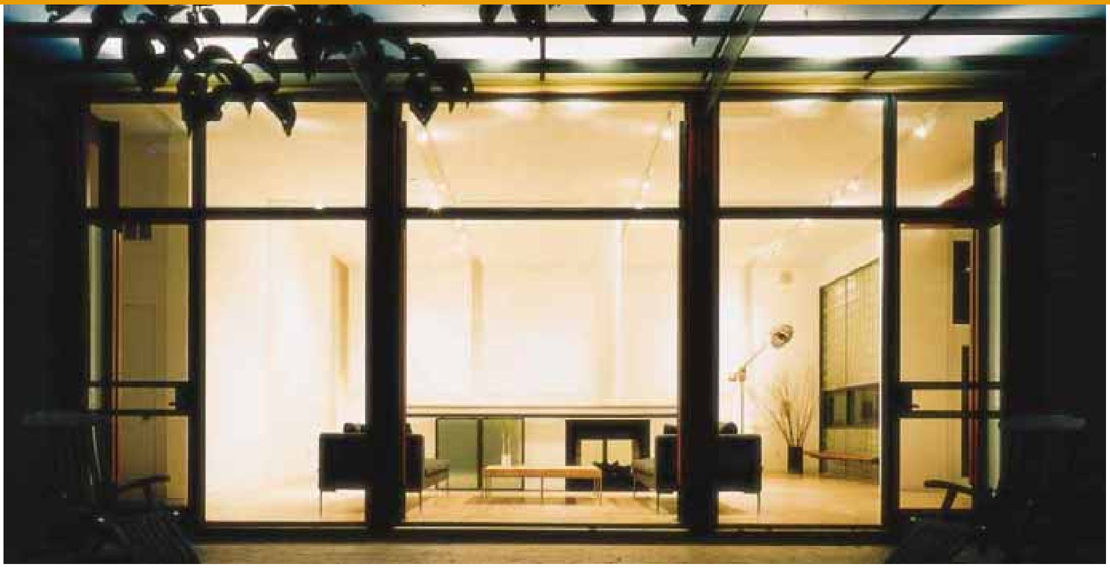
PASTORAL CARE



PHOTOGRAPHY: © TIMOTHY HURSLEY (BOTTOM TWO); NEIL ALEXANDER (TOP)

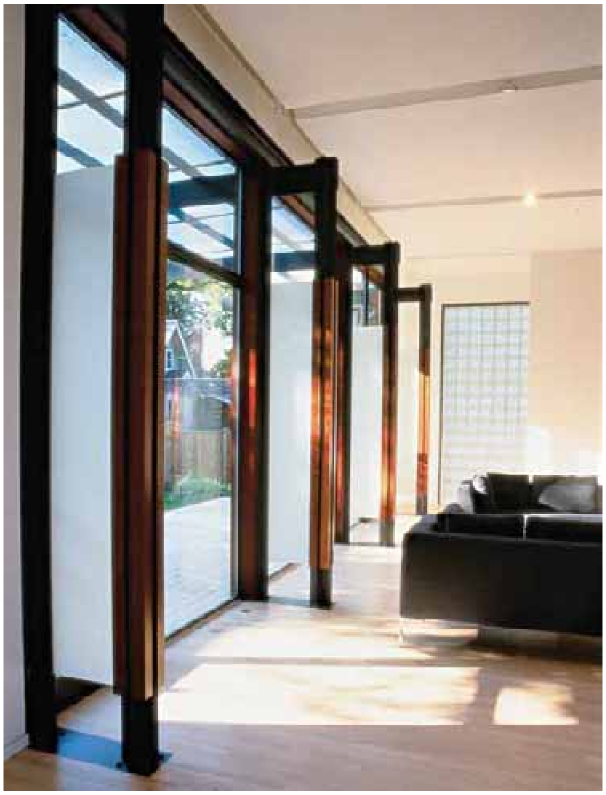
architects, spurred by new technologies of design and construction. Some other award-winning projects create spatial effects by means other than form or materials, as can be seen in the shift toward two-dimensional imagery. Although Venturi and Scott Brown laid out the argument decades ago, the increasing presence of graphic designers on any number of architectural teams (Bruce Mau, 2x4, Imaginary Forces, Rebeca Mendez, to name a few) is profoundly affecting architectural design. The two Primary Centers, by Rios Associates in Los Angeles, are both tagged with Keith Haring– and Tofer-like graffiti. Graphic design creates the individual identities of schools within their specific neighborhoods. This prototype, now realized at two addresses, is a very contextual response to the actual graffiti covering buildings in the Santa Monica area, where they are located.

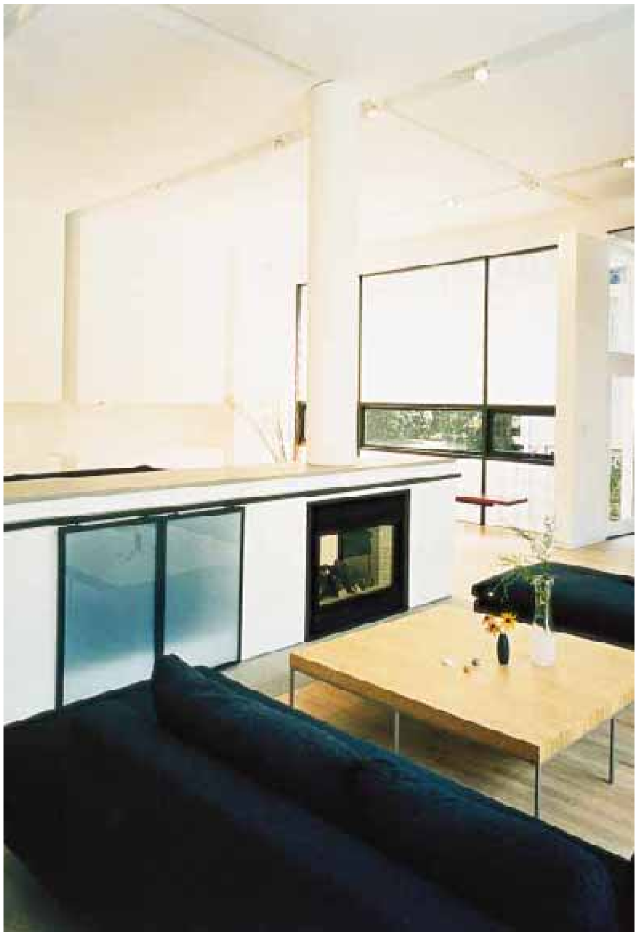
In the Heritage Health & Housing project, by Caples Jefferson, a vernacular patchwork of mosaics is combined with translucent plastic panels. Obscured, variegated light sources add to the cloudy atmospheric quality of the plastic. The ImageNet project by Elliott + Associates literally



Martin Shocket Residence
Chevy Chase, Md.
Architect: *McInturff Architects*

A one-room, 1920s former photographer's studio has been renovated to link with an existing house on the site. The design opens up the connection between the two buildings, giving the resulting family room seen here a Modern aesthetic that contrasts and complements the existing house.





PHOTOGRAPHY: © JULIA HEINE/MCINTURFF ARCHITECTS

> **"Every square inch has been thought through in this remarkable transformation of a single, characterless room."**

uses books as a construction material and type laminated onto walls for enclosing planes. While these projects are commendable, they lack the viable theoretical or social agenda typical of Venturi, Scott Brown's work.

Is there perhaps a future in plastic? The shift from a Modernist transparency to various forms of translucency is characteristic of the Japanese sensibility, as epitomized in the work of Kazuyo Sejima of SANAA, Toyo Ito, and Tokujin Yoshioka. And we see aqueous, cloudy, translucent—the translucence of plastic rather than glass—planes expertly incorporated into many projects. Another project demonstrating an interest in the spatial effects of new materials is the Global Crossing Corporate Headquarters in New York City, by Lee H. Skolnick Architecture, with its luminous fabric snake light.

Several award winners used conventional materials in unconventional ways: witness the flowing, folded, corrugated, pixilated, arabesque screens; modulated, textured surfaces; and curving voluptuous forms of projects such as the Lutèce restaurant in Las Vegas, by Morphosis; the Kate and Laurance Eustis Chapel, by

***The Architecture of R.M. Schindler* Exhibition Installation at MOCA**
Los Angeles
Architect: *Chu + Gooding Architects*

This modestly priced installation design challenged the architect to create a tactile and spatial backdrop to view the various formats of Schindler's work. The design evokes the spirit of experimentalism in Schindler's work in a subtle way and mitigates the contrast of the large scale of the galleries with the small-scale art in the exhibition. The designer also created a display system that brings coherence to the varied formats of the work.

"The integration of illustrations and models is handled with intense care, making the whole fit together like a wonderful puzzle."

PHOTOGRAPHY: © LINDA POLLACK (TOP THREE); ARCH PHOTO/EDUARD HUEBER (BOTTOM TWO)

"As hard as I think, I keep coming back to just one thought about this space—it is very, very romantic."

Craft
New York City
Architect: *Bentel & Bentel Architects/Planners*

A dilapidated former department store built in 1886 has become home to this modest-size restaurant, spread out over the first floor and cellar of the existing building. A simple yet texturally rich interior integrates with the food and service functionally and metaphorically. Within the long, narrow space, a rectilinear steel and bronze wine vault, a curved walnut-and-leather-paneled wall, a dramatic triptych on the back wall, terra-cotta-clad columns, and amber-hued, bare-bulb chandeliers enliven the space.

Eskew+Dumez+Ripple, in New Orleans; and the *Architecture of R.M. Schindler* exhibition installation for the Museum of Contemporary Art, Los Angeles, by Chu + Gooding. Wood, cardboard, plaster board, and masonry were often put to unique uses. The innovations in masonry bonding along with a renewed exploration of this technique shows that lessons have been learned from the fetishistic marquetry of the Southern California architects in the 1980s and '90s. Yet the interest in new combinations of materials can result in a kind of banality if not infused with a structural or formal agenda. Machado and Silvetti's branch library in Allston, Massachusetts, demonstrates that these concerns combined with a neighborly contextualism are not enough to make an interesting midsize building. The virtuoso detailing is inexplicable except as an expression of the will to endlessly articulate surface.

In terms of urban design, we see several cases of nostalgic visions of the city before the arrival of the car. The dense pedestrian preautomotive city is not the one seen in Martin Scorcese's *Gangs of New York*. It is the English

Central Synagogue
New York City
Architect: *Hardy Holzman Pfeiffer Associates*
[RECORD, November 2001, page 99]

After a fire in 1998, this Moorish-style building was restored and new elements seamlessly incorporated into the renovated interior. Gold leaf was reapplied to the finials, ribs, and decorative bands of the onion domes, while two copper finials were reconstructed. Artisans reconstructed plasterwork and floor tiles, restored wainscoting and woodwork, and masterfully painted elaborate stenciled patterns on the walls, ceiling, and cast-iron columns.

"We applaud the client for going well beyond the basic investment to recreating a building with great care and exuberance."

PHOTOGRAPHY: © PETER AARON/ESTO (TOP TWO); ROBERT SHIMER/HEDRICH BLESSING (BOTTOM TWO)

ImageNet
Oklahoma City
Architect: *Elliott + Associates Architects*
[RECORD, September 2002, page 136]

The design reveals what the company does, how it does it, where it's been, and where it's going. The setting both tells a story and is a metaphor. Enlisting ordinary materials derived from the print business itself, such as copy paper and typewriters, the architect creates an engaging and provoking portrait of the company.

"The whole story of the business is embedded in the design—a poetry that has been carried through the entire space."

garden community of Sunnyside, Queens, favored by Lewis Mumford and designed by Clarence Stein and Henry Wright. Nostalgia is better left to Hollywood. Urban designers should invent a new picturesque, if that is what our quasi-city dwellers really need. Sasaki Associates' plan for Philadelphia's Schuylkill Gateway is the most urban of the award winners. It makes the bizarre argument that the best city planning might be done by landscape architects.

All in all, the projects that stood out in the AIA Awards program were those that investigated three fronts expansively and creatively: reinterpreting a received building type; giving this new typological understanding a formal expression; and realizing these forms through innovative techniques and materials. Kohn Pedersen Fox has rethought the mid-rise institutional building type at Baruch College, in New York City. KPF uses escalators as the primary mode of vertical circulation from the ground level to the fifth floor, not just for functional needs, but to encourage social interaction. Here is a piece of technology associated with commercial retail space being

South Court,
The New York Public Library
New York City
Architect: *Davis Brody Bond*
[RECORD, November 2002, page 134]

This three-story modern structure, located in an internal courtyard of the landmarked main branch of The New York Public Library, is successfully integrated into the original building. The structure is lit through ceiling skylights, with the upper floors cantilevered, held back from the original walls by glass partitions. The existing foundation walls are exposed at the bottom of a glass staircase, adding to the feeling of transparency.

"The new building is really a nonbuilding; it subdues itself to highlight and reveal the beauty of the existing historic building."

Lutèce
Las Vegas
Architect: *Morphosis*
[RECORD, September 2000, page 144]

A mini-Venice complete with gondolas, the Venetian Resort is the home of this exclusive restaurant. A subtle entryway pulls patrons from the surrounding casino into a hushed realm of elegance. This 290-seat restaurant features a spare, sophisticated dining room. Within its circular volume, a geometry of tilting and sliding spaces keeps the eye in constant motion.

"This wonderfully subtle and sophisticated place is an oasis from the sensuous overload and chaos that is Las Vegas."

PHOTOGRAPHY: © PETER AARON/ESTO (TOP TWO); FARSHID ASSASSI (BOTTOM THREE)

successfully used for an institution. Bernard Tschumi has reconfigured the concert hall typology in Rouen, France. Here the public and circulation space wrap around the concert hall. Louis Kahn started to do this with the Theater of Performing Arts in Fort Wayne, Indiana (1974), and Jorn Utzon partially carried it off with the Sydney Opera House (1968). But Tschumi makes that hall float in a wrapper of space and skin.

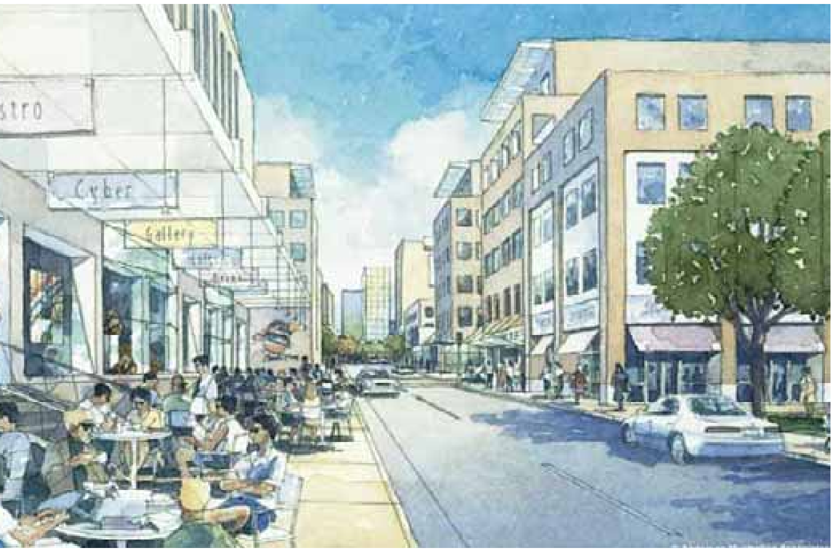
Thom Mayne of Morphosis has set a new standard for public high schools with Diamond Ranch, in Pomona, California. The school's public street between the classrooms allows students to congregate and look at the desert: It is both a large-scale civic space and at the same time is broken into smaller components for social functions. And it is formally inventive. Materials such as metal are not typical of schools in the area.

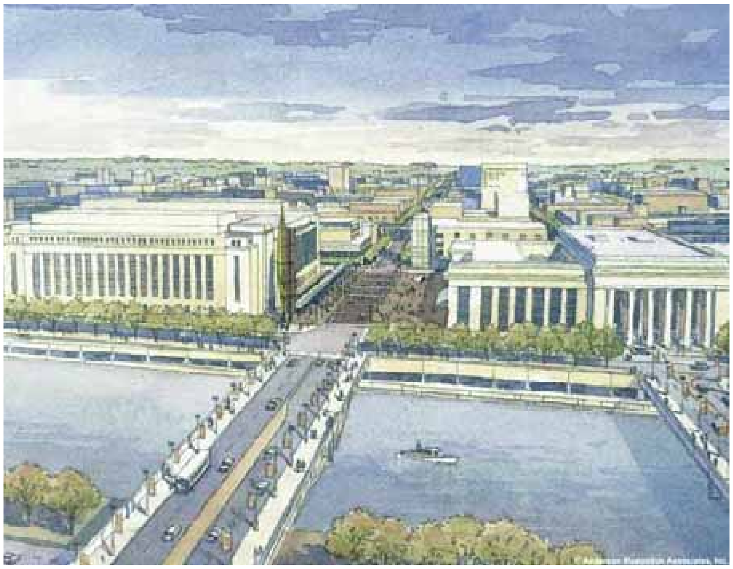
I sound conservative, but these projects did the most obvious thing architecture can do: generate a new form and a spatial model in expertly detailed materials for an institution. They pursued this end to a greater or lesser degree, but these were the most impressive projects of the day. ■

URBAN DESIGN

Schuylkill Gateway
Philadelphia
Architect: *Sasaki Associates; Legg Mason Real Estate Services (associate architect)*

Centered on a river, the Schuylkill Gateway builds a unified district on its two banks, with vibrant residential and office neighborhoods on each side. This unified regional hub joins civic and university life.

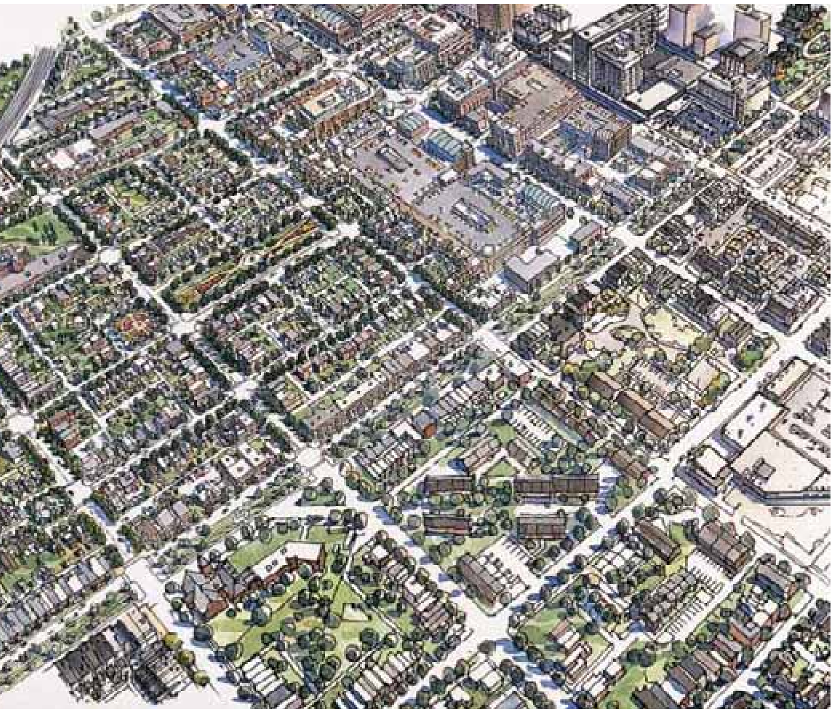


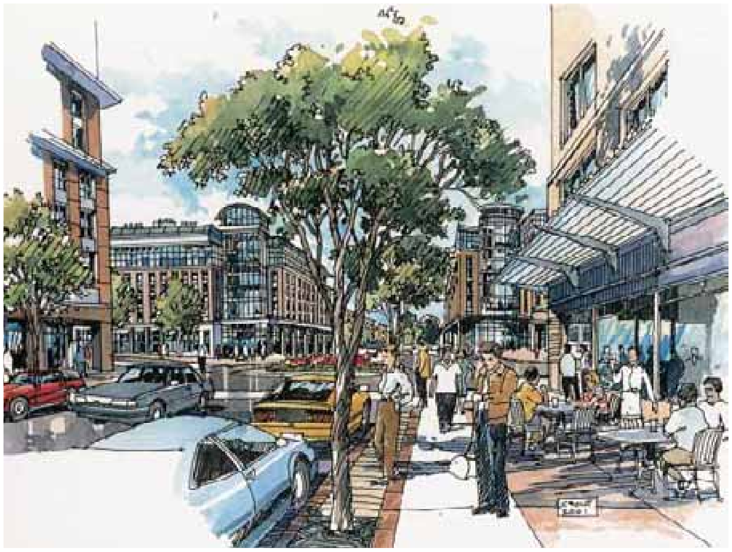


“A creative solution to the intractable problem of university expansion in a dense urban context bounded by a river.”

East Baltimore Comprehensive Physical Redevelopment Plan
Baltimore
Architect: *Urban Design Associates*

This new initiative develops a major biotechnology campus in East Baltimore, setting the stage for reinvestment in a neighborhood fraught with difficulties.



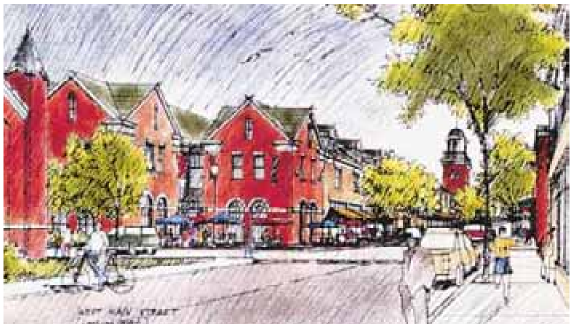


“This extremely complex project provides sensitive solutions for 40 ailing neighborhoods.”

“This project represents a key turning point in reawakening the historic district around Howard University.”

Howard University: LeDroit Park Revitalization Initiative
Washington, D.C.
Architect: *Sorg and Associates*

One of our nation’s first African-American National Historic Districts, the LeDroit Park project raises the bar on how urban universities, once concerned primarily with their own expansion goals, can turn outward, embracing adjacent communities, working with them to fulfill mutually beneficial goals.



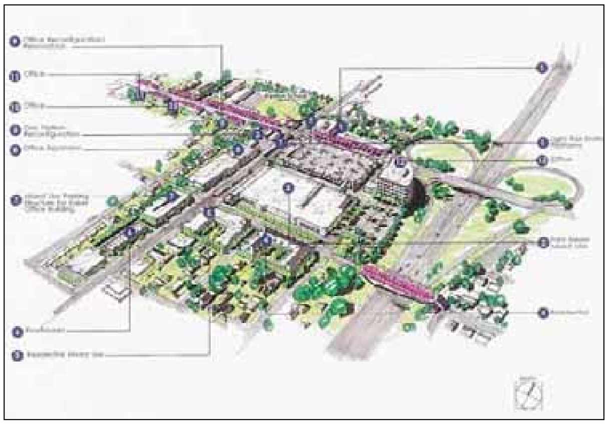
“A plan that ties the town to its malls and campus, making them all hang together, with each part humane and friendly.”

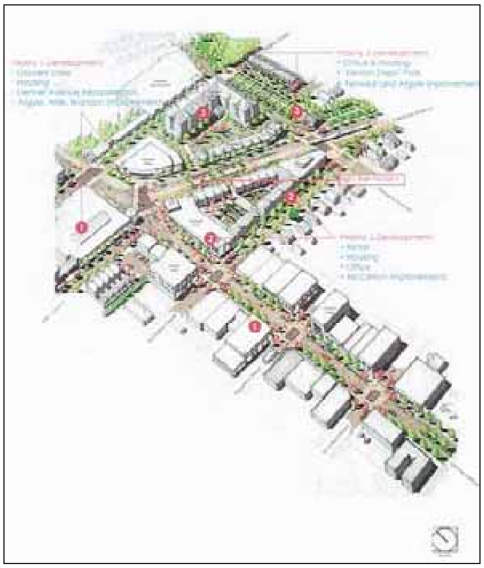
Charlottesville Commercial Corridor Plan
Charlottesville, Va.
Architect: *Torti Callas and Partners-CHK*

This plan identifies and enhances the economic-development opportunities for the revitalization of 15 diverse commercial corridors, ensuring that the realization of these is consistent with the physical demands of a vibrant civic and university lifestyle.

Interstate MAX Station Area Revitalization Strategy
Portland, Ore.
Architect: *Crandall Arambul*

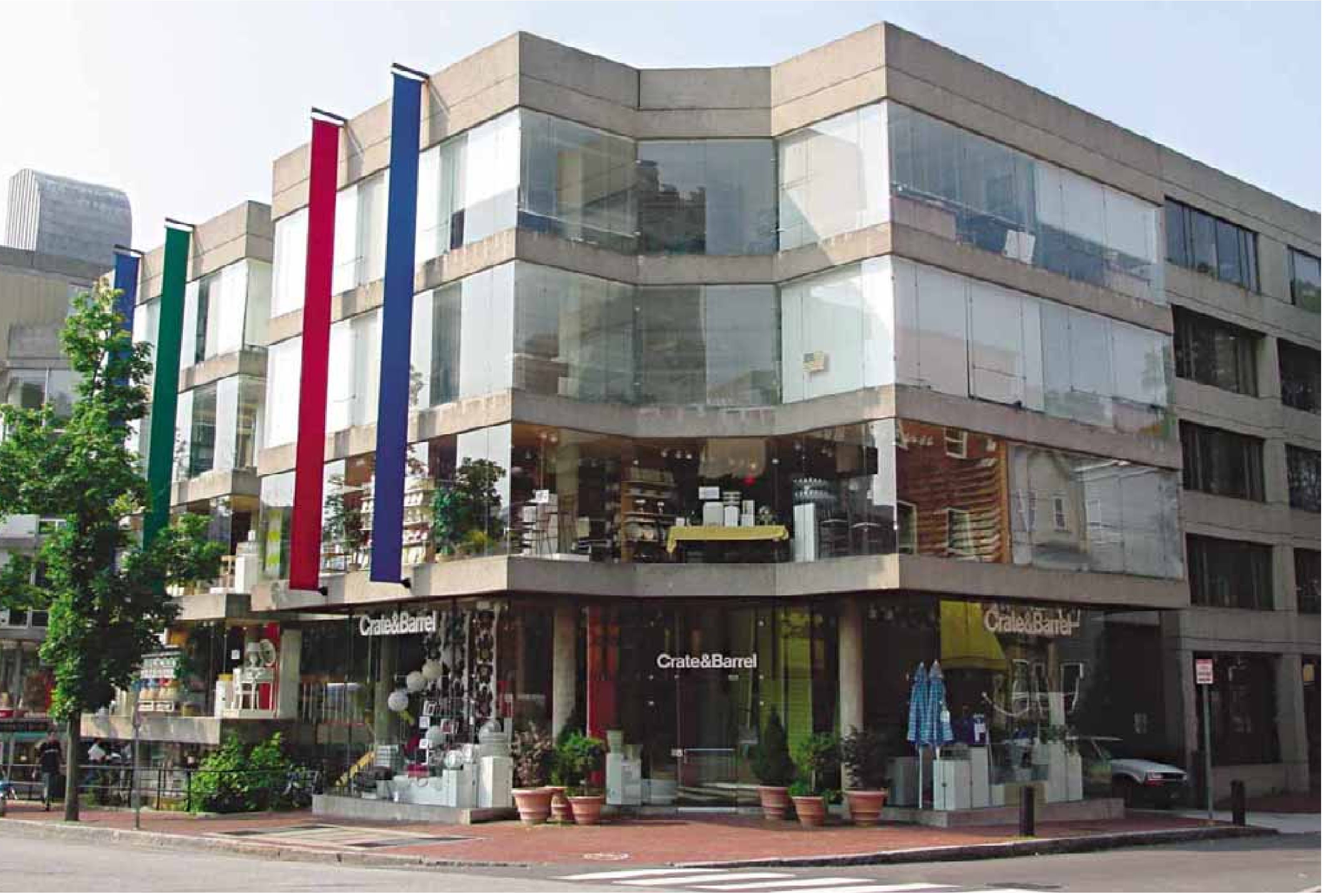
Like many derelict urban areas, North Portland faced a rapid decline in affordable housing, employment, transportation options, and retail and public amenities. This plan revitalizes the areas around six light-rail transit stations. In this framework, planners defined neighborhood centers and pedestrian links, and offered affordable housing solutions.





“This sensitive integration of urban design and transit stations facilitates informed, vital development for each neighborhood.”

25 YEAR AWARD



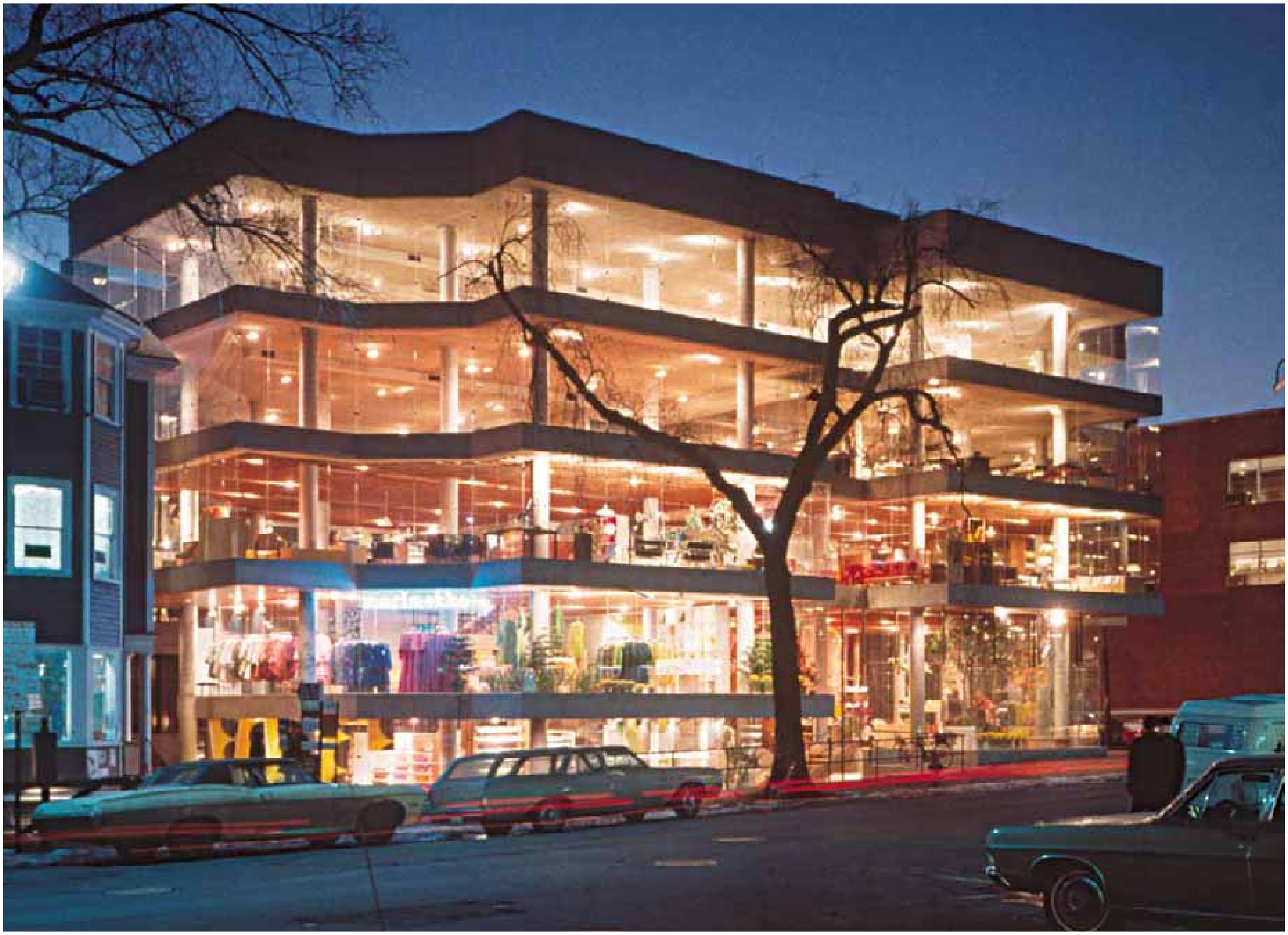
A building designed for display

A familiar landmark in the charming ambience of Harvard Square, in Cambridge, Massachusetts, the former Design Research headquarters, designed by BTA Architects (originally Benjamin Thompson & Associates) withstands the test of time. Fitting comfortably within its historic urban context, the building's asymmetrical glass curtain wall allows abundant light to enter the interior, while its reflecting surface mirrors the vibrant city life surrounding it. This bold facade provides a continuous show window, seen at its most spectacular at night, when interiors, shoppers, and goods are all fully revealed to the outside. Elements of the 1969 design remain in vogue today, illustrating the foresight of the architect. This decades-old project set a new standard for the interaction of retail sales and street life, still so evident in the current retail environment, where passersby can peek at merchandise on view before coming in to shop.

Inside, the lower three floors open onto each other through alternating levels flanking a well for connecting stairways, creating a multitiered, visually and spatially unified whole. Understated wall and floor surfaces provide a neutral background for display.

Forced to close its doors in the mid-1970s, the building was purchased by the developer of the adjacent 42 Brattle Street building, designed by Jose Luis Sert and Huson Jackson. The space between the structures has become a pedestrian passage to a building at the rear (the former offices of The Architects Collaborative) and the street beyond. In 1975, Crate & Barrel replaced Design Research as the tenant and still uses the space as its East Coast showcase store.—*Jane F. Kolleeny*

PHOTOGRAPHY: © BTA ARCHITECTS (OPPOSITE); EZRA STOLLER/ESTO (THIS PAGE)



> **"The structure and purpose of this graceful extension of the urban streetscape are unified in subtle expressiveness."**

American Institute of Architects

Winners and Jurors 2003

WINNERS

Architecture (page 132)

Federal Building and United States Courthouse: *Richard Meier & Partners, Architects; Spector Group;* **New Academic Complex, Baruch College, CUNY:** *Kohn Pedersen Fox Associates; Castro-Blanco Piscioneri (associate architect);* **Colorado Court:** *Pugh Scarpa Kodama;* **Will Rogers World Airport Snow Barn:** *Elliott + Associates Architects;* **Heritage Health & Housing:** *Caples Jefferson Architects;* **Diamond Ranch High School:** *Morphosis; Thomas Blurock Architects (associate architect);* **Howard House:** *Brian MacKay-Lyons Architecture Urban Design;* **Hypo Alpe-Adria Center:** *Morphosis;* **3rd & Benton/7th & Grandview Primary Centers:** *Rios Associates;* **American Folk Art Museum:** *Tod Williams Billie Tsien Architects; Helfand Myerberg Guggenheimer Architects (associate architect);* **Simmons Hall, MIT:** *Steven Holl Architects; Perry Dean Rogers & Partners (associate architect);* **Bo01 "Tango" Housing:** *Moore Ruble Yudell Architects & Planners; FFNS Arkitekter (associate architect);* **Concert Hall and Exhibition Complex:** *Bernard Tschumi Architects;* **Lever House Curtain-Wall Replacement:** *Skidmore, Owings & Merrill; Gordon H. Smith, P.E. (engineer of record);* **Boston Public Library, Allston Branch:** *Machado and Silvetti Associates*

Interiors (page 152)

Gardner-James Residence: *Valerio Dewalt Train Associates;* **Global Crossing Corporate Headquarters:** *Lee H. Skolnick Architecture + Design;* **Collins Gallery:** *Patrick J. Tighe, AIA;* **Kate and Laurance Eustis Chapel:** *Eskew+Dumez+Ripple;* **Martin Shocket Residence:** *McInturff Architects;* ***The Architecture of R.M. Schindler*** **Exhibition Installation at MOCA:** *Chu + Gooding Architects;* **Craft:** *Bentel & Bentel Architects/Planners;* **Central Synagogue:** *Hardy Holzman Pfeiffer Associates;* **ImageNet:** *Elliott + Associates Architects;* **South Court, The New York Public Library:** *Davis Brody Bond;* **Lutèce:** *Morphosis*

Urban Design (page 164)

Schuylkill Gateway: *Sasaki Associates; Legg Mason Real Estate Services (associate architect);* **East Baltimore Comprehensive Physical Redevelopment Plan:** *Urban Design Associates;* **Howard University, LeDroit Park Revitalization Initiative:** *Sorg and Associates;* **Charlottesville Commercial Corridor Plan:** *Torti Callas and Partners-CHK;* **Interstate MAX Station Area Revitalization Strategy:** *Crandall Arambul*

25-Year Award (page 168)

Design Research Headquarters Building, Cambridge, Mass.: *BTA Architects*

Firm of the Year (page 172)

The Miller/Hull Partnership: *David Miller, FAIA, and Robert E. Hull, FAIA*

JURORS

Architecture

Jack Hartray, FAIA (chair), Chicago; Paul Byard, FAIA, New York City; Merrill Elam, AIA, Atlanta; Mary Griffin, AIA, Berkeley; Vincent James, AIA, Minneapolis; Michael D. Perry, Hon. AIA, Virginia Beach, Va.; Barton Phelps, FAIA, Los Angeles; Ryan Sullivan, Columbia, Md.; Thomas J. Trenolone, Assoc. AIA, Dallas

Interiors

Lawrence Scarpa, AIA (chair), Santa Monica, Calif.; Sara E. Caples, AIA, New York City; Olvia Demetriou, FAIA, Washington, D.C.; Juan Miró, AIA, Austin, Tex.

Regional and Urban Design

Martha Welborne, FAIA (chair), Los Angeles; William Holloway, AIA, Wilmington, Del.; Steven Hurtt, AIA, College Park, Md.; Robert Kroin, AIA, Boston; Diane Legge Kemp, FAIA, Chicago

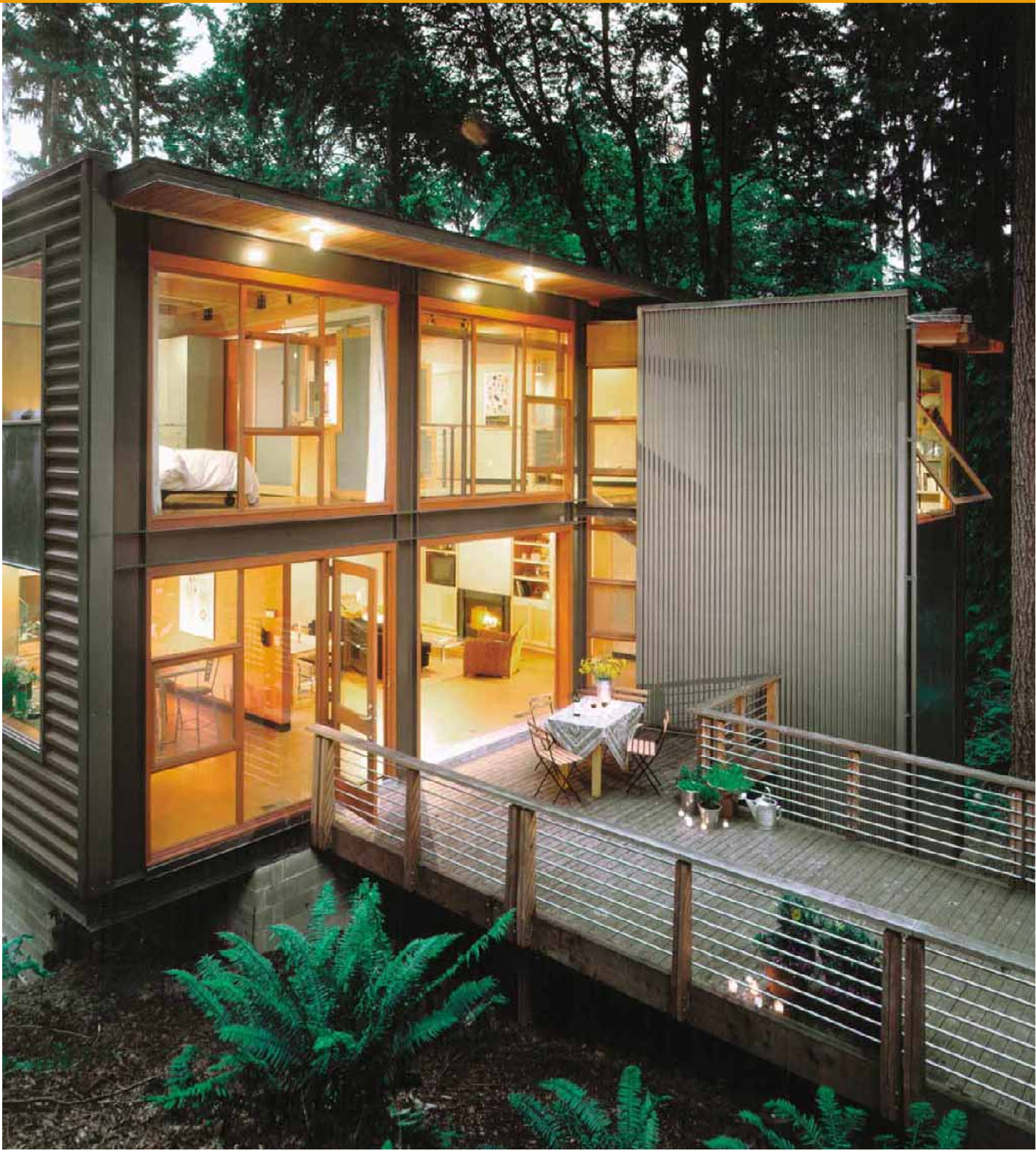
FIRM OF THE YEAR AWARD

A spirit of openness propels Miller | Hull to excellence

by Sheri Olson, AIA

A stint in the Peace Corps during the 1960s altered the lives of David Miller, FAIA, and Robert Hull, FAIA, and established the fundamental values of their future practice. "As a firm we're united in the belief that architecture can change lives and make the world a better place," says Hull of The Miller/Hull Partnership, this year's winner of the AIA Firm Award. Both joined the corps after graduating in 1968 from Washington State University (WSU), where they met in architecture studio. Assigned to different

Sheri Olson, AIA, is RECORD*'s Seattle-based contributing editor, architecture columnist for the* Seattle Post-Intelligencer, *and author of* Miller/Hull *(Princeton Architectural Press, 2001).*



PHOTOGRAPHY: © JAMES F. HOUSEL (OPPOSITE, TOP); ART GRICE (OPPOSITE, BOTTOM, AND THIS PAGE)

Michaels/Sisson Residence
Mercer Island, Wash., 1998

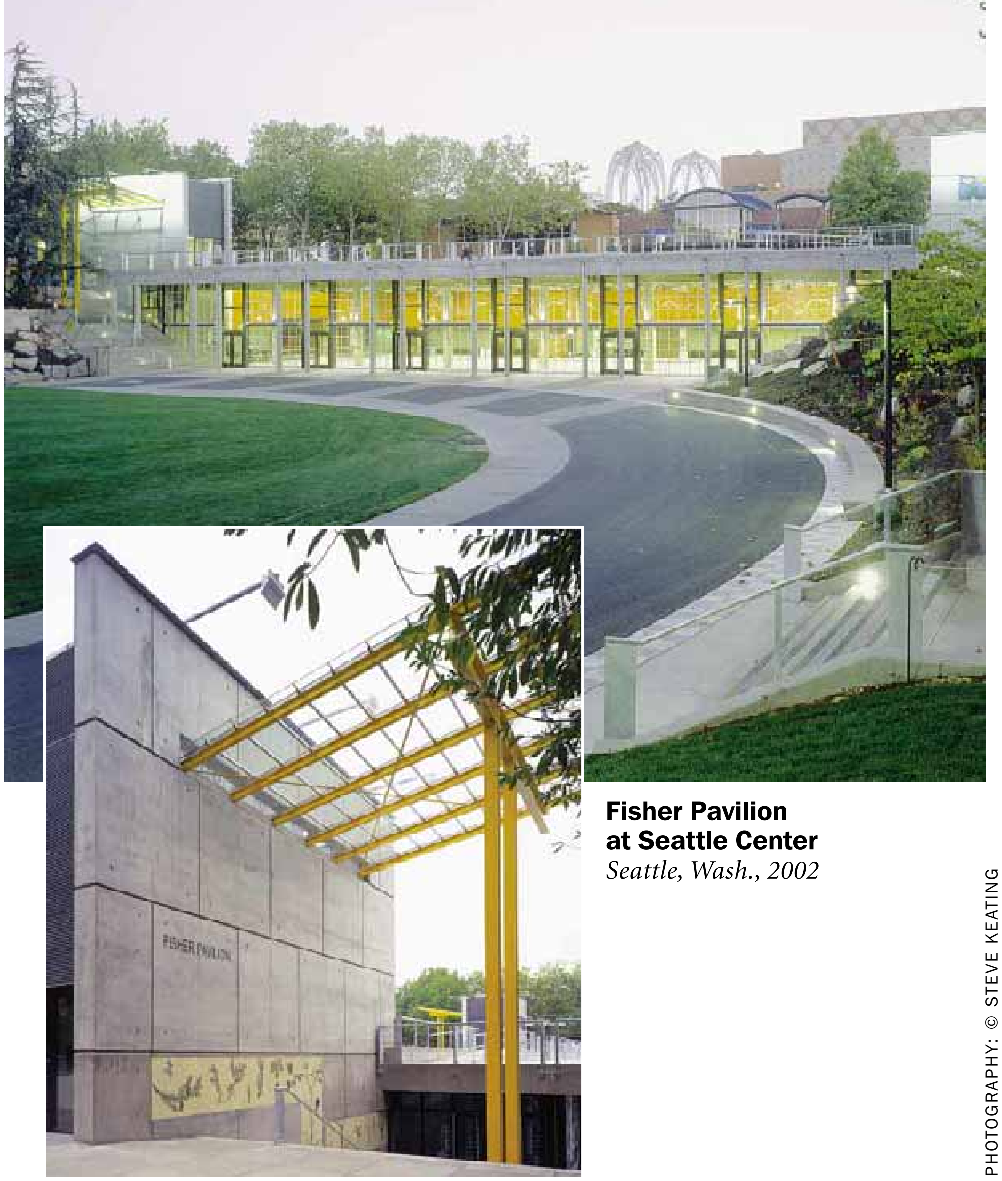
continents—Miller set up self-help housing programs near Brasilia and Hull built mud-brick schools in Afghanistan—they sharpened their social consciousness while practicing an architecture that was efficient, sustainable, and regional. The idealism of that time continues to fuel their work today.

After the Peace Corps, they returned to the Northwest and founded The Miller/Hull Partnership in 1977, known for combining the best of regionalism and Modernism. "In an era when buildings look the same worldwide, Miller/Hull has defined Pacific Northwest Regional Modernism in a way that inspires architects around the globe to respond to the unique characteristics of their own regions," said AIA board member Bruce Blackmer in his nominating letter. Responding to the region's mild maritime climate, pearl-gray sky, and wooded wilderness with a transparency that is the crux of their work, Miller/Hull Partnership views the region's modest utilitarian structures—the lumber mills, fishnet-drying sheds, and forest-fire watchtowers—with a Modernist's love of structural clarity, taut skins, and industrial materials. The majority of the firm's work—from sylvan retreats to exurban city halls—may be situated in the Northwest, but their approach to local climate, materials, and culture is applicable to any region. The firm's ethos of environmental and social responsibility honed during the Peace Corps represents their larger view.

An open culture

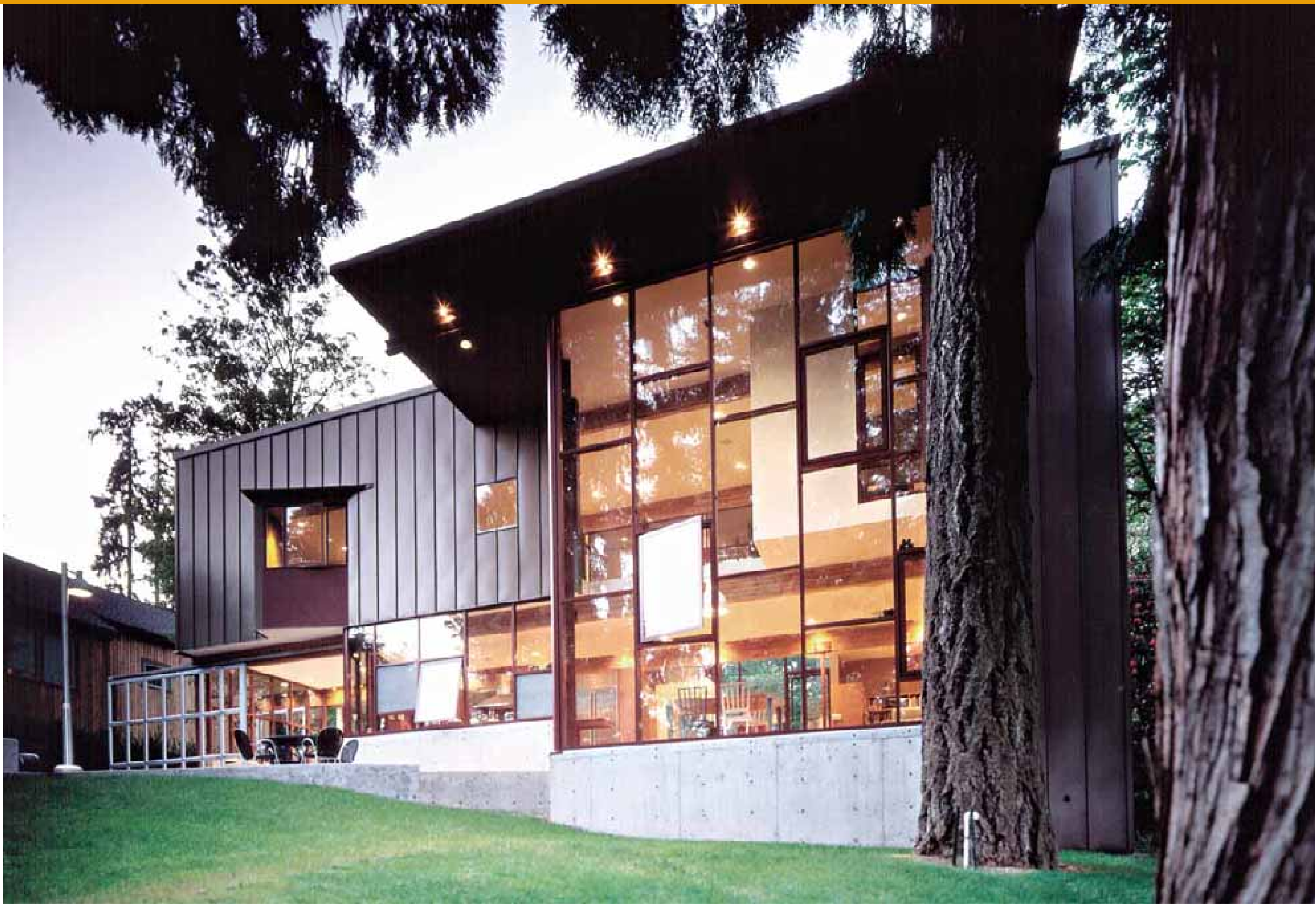
Miller/Hull occupies a creaky loft building on Seattle's waterfront, with ferries to outlying islands visible outside the large industrial windows. "A spirit of teamwork and mutual respect for one another is instantly obvious when one enters the space," said John Anderson in his nomination letter. There are neither doors nor individual offices, indicating the open culture of the firm. With 50 employees, the firm is at its largest, with three principals in charge of design (Miller, Hull, and Craig Curtis, AIA—also a WSU graduate, made partner in 1994), managing partner Norman Strong, AIA (another WSU grad and the firm's first employee to be made partner, in 1986), and four associates. "They're at a size when most firms would impose a management structure, but they made a decision not to do that; instead, they resist excess formalization," says Hugh Hochberg of The Coxe Group.

Instead, Miller and Hull continue to drop by each other's desks to discuss projects, as in the early days of the practice when they sat in desks facing each other. "Bob and I rely on each other to be our own best critic," says Miller. They cultivate a team approach that allows variations in response to building type and sites, while maintaining a consis-

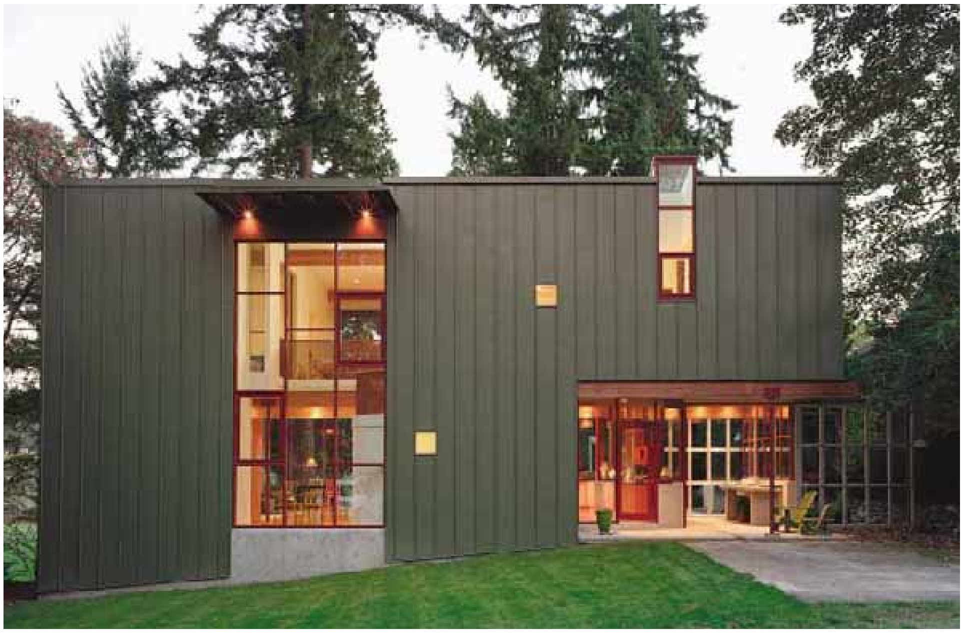


Fisher Pavilion at Seattle Center
Seattle, Wash., 2002

PHOTOGRAPHY: © STEVE KEATING



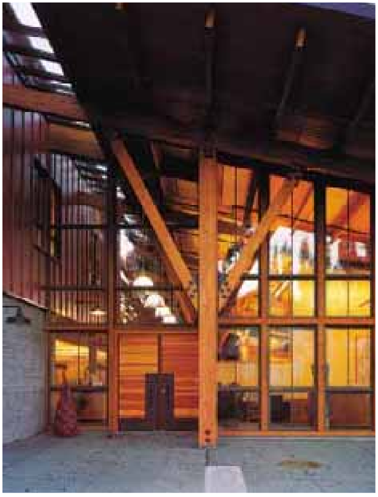
Roddy/Bale Residence
Bellevue, Wash., 1998

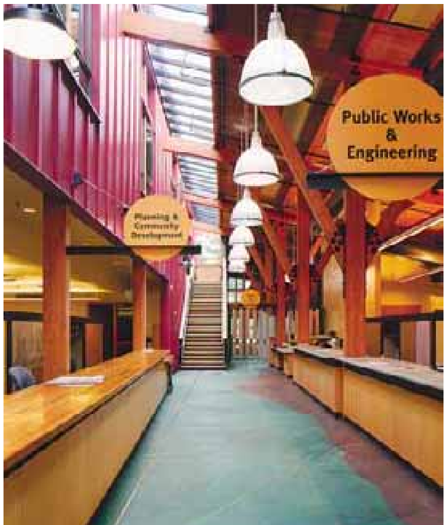


PHOTOGRAPHY: © JAMES F. HOUSEL

1310 East Union Live/Work Lofts
Seattle, Wash., 2002

Bainbridge Island City Hall
Bainbridge Island, Wash., 2000





tency of architectural expression. The level of design leadership is what makes Miller/Hull unique, producing a consistently high quality of design work recognized by 120 awards in the past 25 years. "It's rare for a firm to have multiple strong designers that are also strong design leaders," says Hochberg.

The spirit of collaboration extends to clients, consultants, and communities. Design of a border station at Point Roberts, Washington, under GSA's Design Excellence Program illustrates this quality. "The form was not the inevitable conclusion of programmatic dictates. Instead, the client engaged us in critical and imaginative explorations of representative expressions of contemporary culture," says Miller. From these discussions, Miller generated a schematic design model (shoebox-size for easy carrying) to share with the client. As with all projects, consultants came on board early in the process. Especially crucial input from the structural engineers facilitated design of a pair of steel masts and cables that hold up a 100-foot cantilevered canopy. As is typical for work currently on the boards, the project was presented to the entire Miller/Hull office for comment at their weekly design review. While the original vision remained the same, the feedback from all constituencies sharpened and refined important details of design.

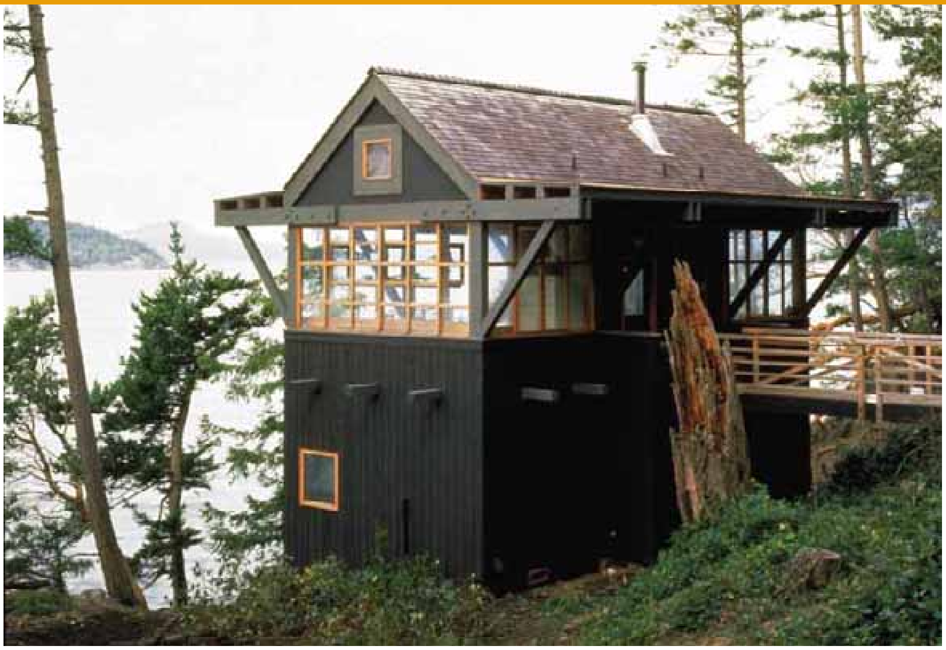
> **"As a firm we're united in the belief that architecture can change lives and make the world a better place."**

An economy of means

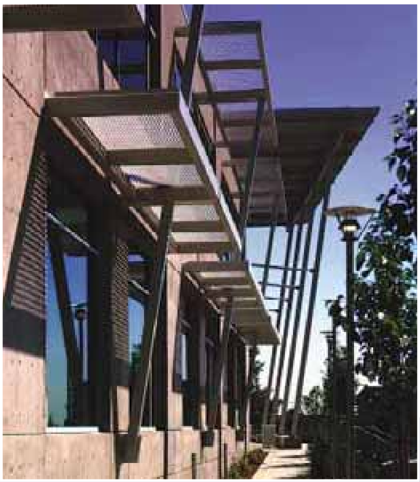
The ideas that make Miller/Hull's public work uniquely expressive—the spare form, exposed structure, and exaggerated graphic sensibility—appear first in residential projects. "Houses are a great way to experiment," says Hull. The economy of means learned in the Peace Corps is also evident in Miller/Hull's residential work. For example, the Marquand retreat comes close to resolving the client's conflicting aims of enjoying the luxury of a home on a private plot of the Pacific Northwest wilderness while not destroying or imposing significant change on the terrain. Due to the client's cooperation, this 450-square-foot primitive hut is off the power grid: Kerosene lanterns provide light, a wood stove supplies heat, and a picnic cooler serves as the weekend refrigerator. Water is trucked into the remote site in the Cascade foothills and stored in a tower over a gravity-fed shower.

Practical considerations were key in selecting the retreat's industrial materials, since it sits in an area prone to wildfires and intruders. The exterior walls are concrete block, and metal shut-

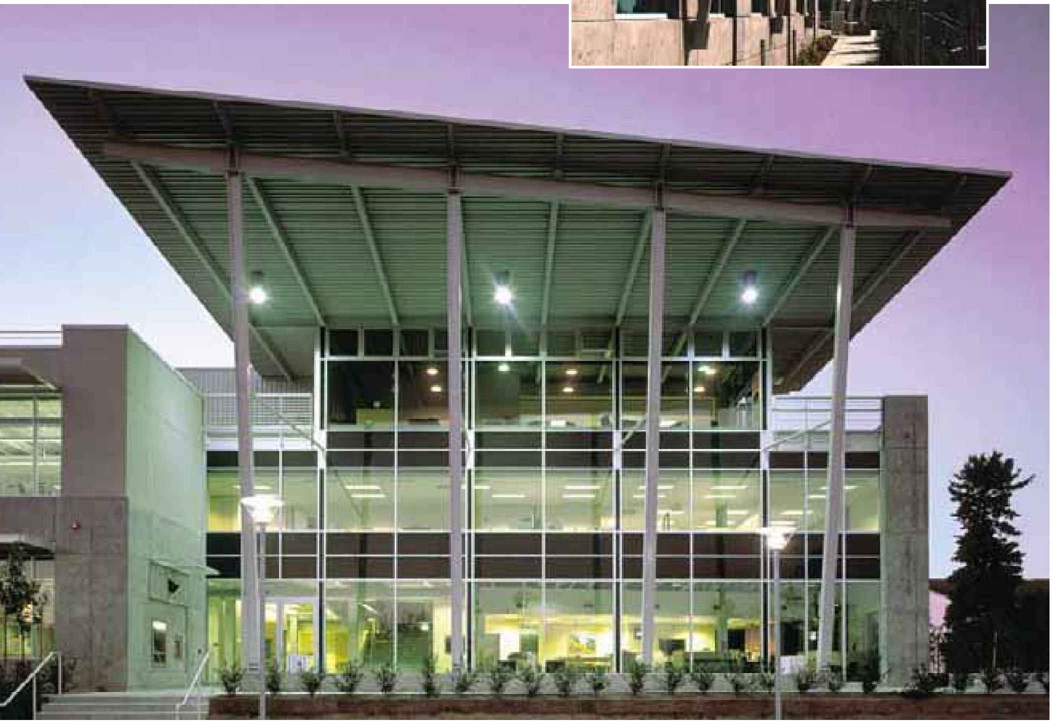
PHOTOGRAPHY: © JAMES F. HOUSEL (TOP TWO); ART GRICE (BOTTOM THREE)



Novotny Cabin
Decatur Island, Wash., 1990



NW Federal Credit Union
Seattle, Wash., 1996



ters lock down over each opening. A roll-down steel door protects a 10-foot-square opening in the center of the south facade. Clerestory windows between the two overlapping planes of the roof allow sunlight to penetrate into the two-room interior. One of the corrugated metal planes floats over the house, engaging the tower on the north and then projecting out to cover a porch on the south. A single, off-center column holds up a cantilevered edge beam and frames a view of the surrounding basalt cliffs. Like many Miller/Hull projects, the spare design plays with scale to create a monumentality befitting the raw beauty of the landscape.

Modernism's new civic face

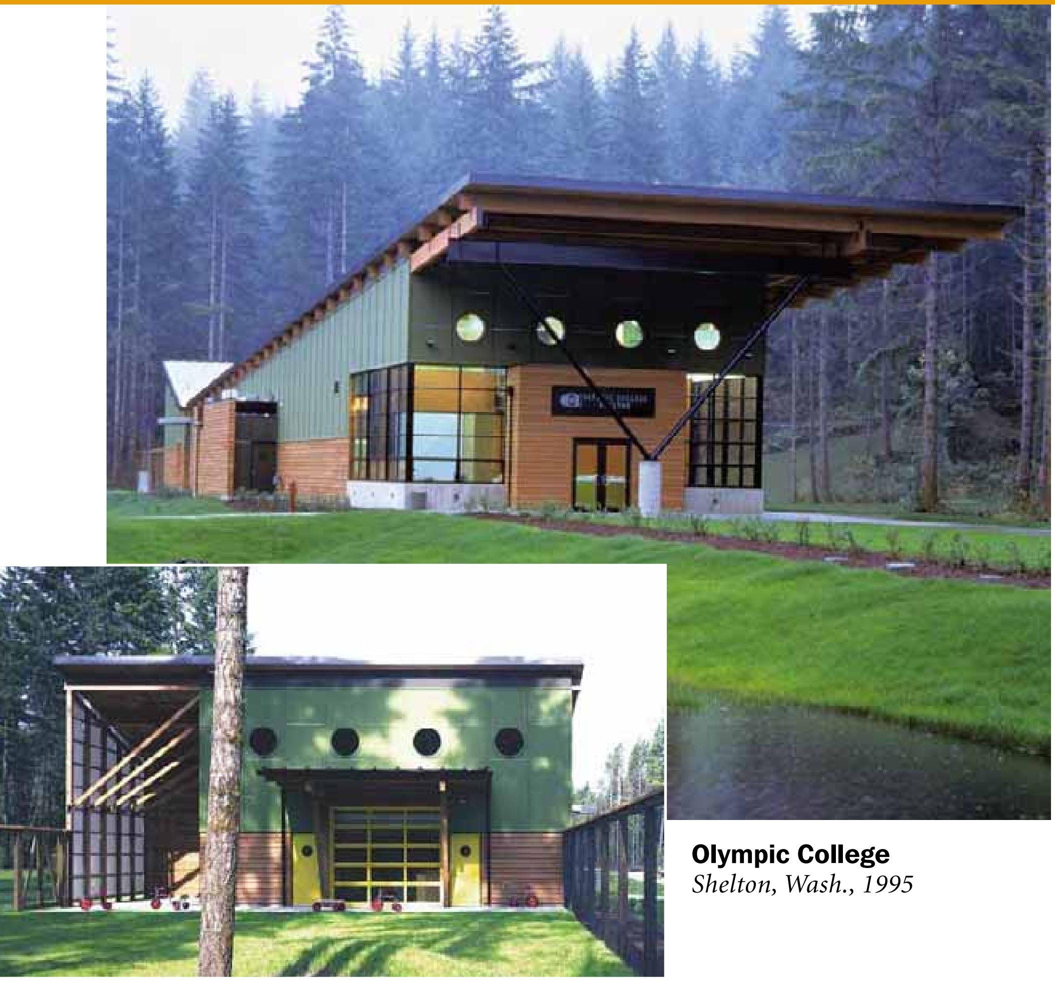
Perhaps best known outside the Northwest for its innovative houses, Miller/Hull Partnership's public work is what impacts the local community. "During my tenure, the firm worked on several important buildings in Seattle, all of which have contributed significantly to the public realm. The Garfield Community Center transformed one of the most dangerous corners in our city into an active, vibrant meeting place," wrote former Seattle mayor Paul Schell in his nominating letter. In contrast to traditional institutional buildings that rely on symmetry and solidity to convey gravity and longevity, Miller/Hull defines a new civic face with floating planes, geometric volumes, and taut surfaces. "Public architecture by definition has an obligation to impart meaning and symbolism for people," says Miller.

The spare form, exposed structure, and exaggerated graphic sensibility appear first in their residential projects.

The firm's classroom building for the Olympic College campus in Shelton, Washington, exemplifies the best qualities of their public work. A vast roof hovers over classrooms running along the north and the covered open-air walkway connecting them along the south. Faculty offices puncture the classroom wall to articulate this elevation and provide a more intimate scale. The roof rises over its 100-foot length, culminating in a dramatic double-height porch held aloft by a steel beam supported on a "V" of slender steel rods. It is a simple yet innovative detail that appears slightly off balance, capturing the eye while creating an indelible image.

Miller/Hull emphasizes the expressive potential of ordinary construction rather than highly crafted, high-cost details. This is partially due to tight budgets for public projects, but also derives from the principals' Peace Corps days and the moral imperative of doing more with less. The

PHOTOGRAPHY: © MICHAEL SHOPENN (TOP); JAMES F. HOUSEL (MIDDLE AND BOTTOM)



Olympic College
Shelton, Wash., 1995

Marine Technical Facility,
Seattle Central Community College
Seattle, Wash., 1987

firm achieves this through innovative yet straightforward handling of ordinary materials and attention to textural variety and depth. At Olympic College, the fine grain of natural wood siding is juxtaposed with medium-density fiberboard panels. Oversize wood battens cover the vertical joints between panels every 4 feet and have exposed fasteners to contrast roughness and fineness.

Olympic College's bold colors, jumbo textured siding, and oversize roof combine to give the 8,000-square-foot project a physical presence worthy of its symbolic role in the community. A 1999 National AIA Honor Award jury concluded: "On a tight budget, this modest, unpretentious design serves its client and its small community well." Throughout the region, Miller/Hull's government, institutional, and community projects assert a civic presence in amorphous town centers and on the edges of suburbia.

Miller/Hull brings the same level of thoughtfulness and creativity to the less glamorous utilitarian structures that form the backdrop of community life. "Thinking of the building types they have sought out and realized—recycling centers; water pollution control laboratories; small, ecologically sustainable community buildings and houses—one feels an understated polemic," wrote Steven Holl in his nominating letter. A water pollution control laboratory on the Willamette River in Portland, Oregon, provides a welcoming public face, yet embodies a distinctly utilitarian use. A working demonstration of storm-water treatment illustrates the building's purpose as a water-quality testing facility in a series of water features on the parklike site. Scuppers and downspouts dramatize the fact that roofs are a major source of storm-water runoff in urban environments.

Both architect and developer wanted to give people a reason to abandon their three-car-garage McMansions.

Sustainable design

Sustainable design is a natural outgrowth of Miller/Hull's design approach rooted in a response to site specifics. "We feel that sustainable design and regionalism are intricately tied together. All significant lessons in sustainable architecture come from the vernacular," says Miller. This environmental focus won the firm a series of awards, including two National AIA Top Ten Earth Day awards. "They clearly show that creative, intriguing, and beautiful structures can be sustainable," says William Browning, founder of the Rocky Mountain Institute. Bainbridge Island City Hall, Washington, demon-

PHOTOGRAPHY: © CHRIS EDEN/EDEN ARTS (TOP TWO); GARY OCHSNER (BOTTOM)

Water Pollution Control Laboratory
Portland, Ore., 1997

Marquand Retreat
Naches River Valley, Wash., 1992

SEATTLE
ACADEMY

Seattle Academy of Arts and Sciences Gymnasium Building
Seattle, Wash., 2002

strates this quality. Skylights run the length of a double-height interior street to bring natural light deep inside and facilitate natural ventilation through operable windows. Finish materials are primarily recycled, nontoxic, or non–ozone depleting. With the astute siting of the project's simple volumes, a new civic center thrives on what was once a parking lot.

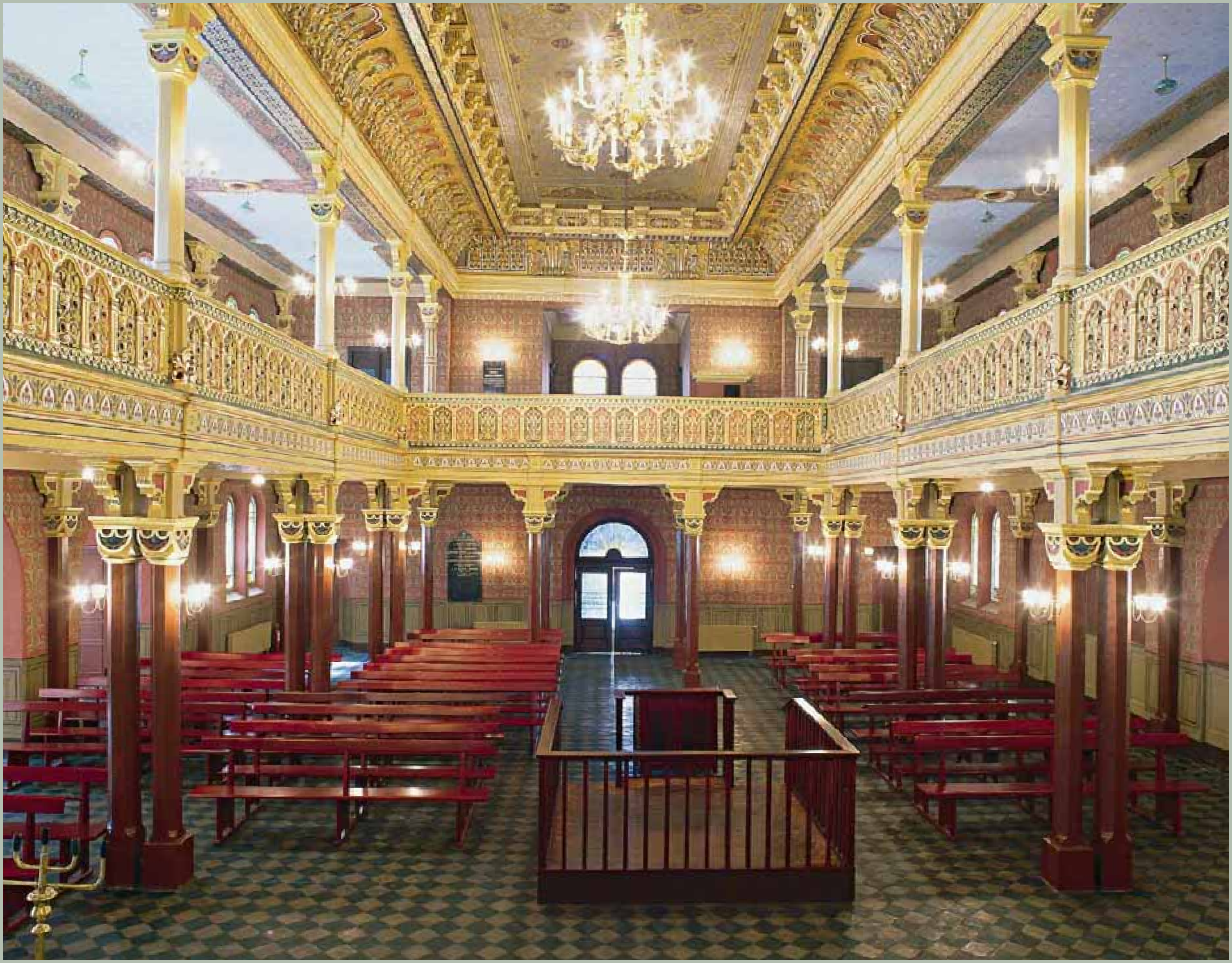
The future of sustainability lies beyond material choices to changing patterns of growth. Working with an environmental activist, former high-tech executive and first-time developer Liz Dunn, Miller/Hull designed 1310 East Union, a steel-and-glass loft-style condominium project on a small urban lot. "Our idealism and risk-taking tends to attract clients with similar attributes," says Miller. In a city dominated by cookie-cutter multifamily projects, both architect and developer wanted to give people a reason to abandon their three-car-garage McMansions and live in the city with a design that was architecturally strong. The striking, steel-framed glass box expresses a Modernist sentiment, with fine-grained detailing to lend a residential scale. Seismic X-bracing—slender tube steel painted brick red—crisscrosses the central bay's outboard of motorized glass garage doors that slide up to open entire walls of some units to the outside; an appealing feature in the Pacific Northwest's moderate climate. These essentially room-size front porches combine with a scattering of cable-railed balconies to add an extra liveliness and neighborliness to the street. Although not intended as a prototype, it is an example of the type of urban-infill project Seattle needs to mend gaps in the urban fabric while addressing the shortage of high-quality in-city housing.

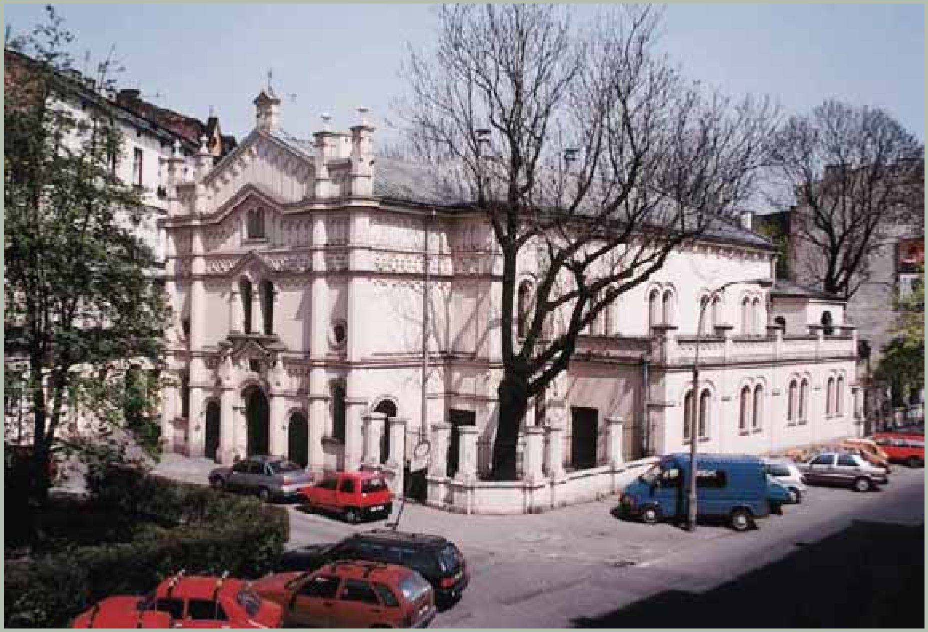
> **"All significant lessons in sustainable design come from regionalism and the vernacular."**

What the award will bring

How will the award change Miller/Hull? "As our reputation grows as a result of this award and we design more outside the Northwest, we hope to employ a regional approach to these new environments," says Miller. The firm discussed and dismissed the idea of establishing branch offices and looks instead for more opportunities to collaborate with firms in other locales. "It will also probably help to attract even more bright, talented people to our staff," says Strong. Otherwise, after finishing the champagne sent by clients and wellwishers, it is back to the drawing boards, computers, and model shop. Adds Curtis, "Now there's even more pressure to do good work." ■

PHOTOGRAPHY: © STRODE ECKERT (TOP TWO); STEVEN CRIDLAND (MIDDLE); BEN BENSCHNEIDER (BOTTOM TWO)





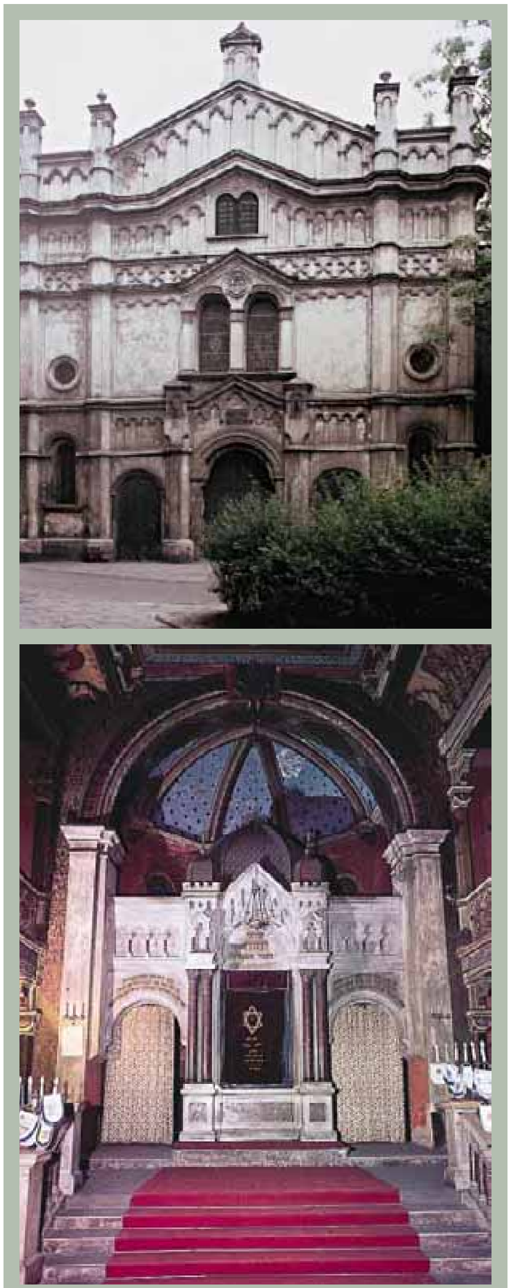
Tempel Synagogue, Krakow: One of the few synagogues that survived the Nazi occupation of Poland during World War II, this mid-19th-century manifestation of an era of great Jewish prosperity was intact but in poor repair when the World Monuments Fund undertook its restoration. The prayer hall (above) is Classic in form, with Moorish ornament reapplied by preservation craftsmen. The exterior (right) was given a fresh coat of stucco.

Two synagogues regain new life and tell of the old

By Mildred F. Schmertz, FAIA

Since the end of World War II, over a period of almost six decades, damaged or totally ruined buildings, districts, and older city centers in Europe and the former Soviet Union have been restored or completely rebuilt as close as possible to their prewar state. Until recently, most preservation effort has been expended on buildings and sites of outstanding aesthetic, historic, or cultural significance, such as the recently completed rebuilding of the old city of Dresden and the restoration of the Reichstag in Berlin [RECORD, July 1999, page 103]. By contrast, restoration or conservation of little-known structures of perhaps equal architectural importance has begun in Poland, Czechoslovakia, Hungary, and Romania.

With the fall of Communism, the opening of Poland's borders to Western tourists has brought many Jews to visit the villages, towns, and cities where their forebears lived before the Holocaust. Many pass through Krakow on their way to and from the memorial on the site of the former death camp at Auschwitz-Birkenau. There is little that remains of Jewish life for these pilgrims to see and experience, however, because the Nazis destroyed Jewish neighborhoods, schools, libraries, and synagogues, and handed over Jewish homes to Germans and local collaborators. Today, contemporary Jewish culture does not flourish in the former iron-curtain countries because very few Jews care to live there. But remaining synagogues, if not empty ruins or reborn as movie theaters, warehouses, or put to other ordinary uses, are being adaptively reused as Jewish museums and libraries, while some are being maintained as living places of worship for existing congregations and visitors.



The principal facade (top) and the ark and its setting (above) as they appeared before restoration. The prayer hall ceiling was blackened by decades of neglect. The synagogue interior and exterior were still intact and thus required renewal of surfaces and finishes rather than significant reconstruction, apart from extensive repairs to the roof.

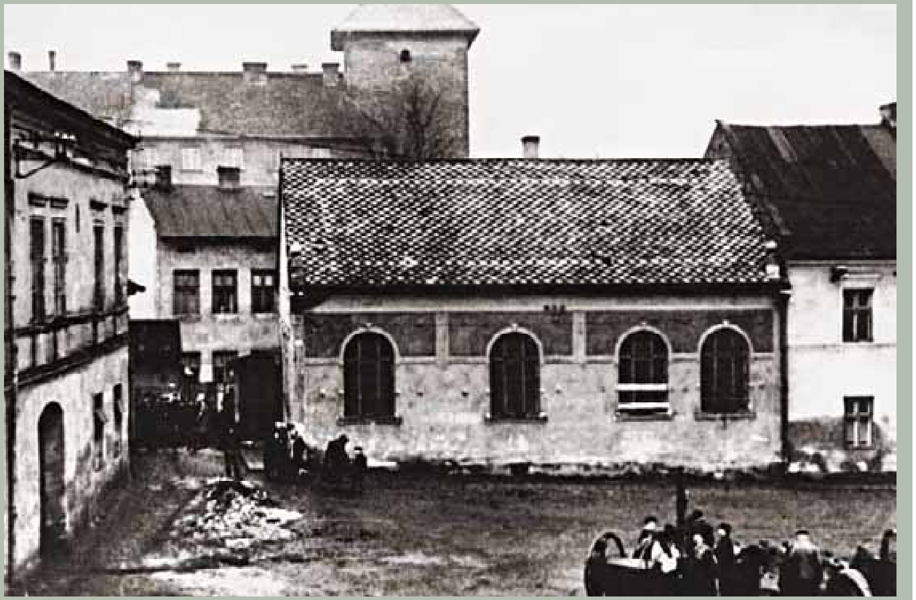
Soon after the lifting of Soviet control in 1990, Samuel Gruber, then founding director of the Jewish Heritage Council of the World Monuments Fund (WMF) and currently a consultant to WMF, prepared a list of 10 architecturally important Polish synagogues that were in need of restoration. Of these, he recommended that the 19th-century Tempel Synagogue in Krakow receive special attention by WMF. This synagogue is not only a magnificent building that emerged from the era of Polish Jewry's largest expansion and greatest prosperity, but it is also the only intact large urban synagogue of its type still to be found within the country. Constructed of brick and covered with stucco in 1860–62 by followers of Reform Judaism, the Tempel underwent additions and renovations in the 1890s and again in the 1920s. It survived because the Nazis used it as a stable and a warehouse. Neglected for more than 50 years and closed for a decade, the building required extensive restoration.

The small, poor, and elderly Jewish community of Krakow, owners of the synagogue, welcomed WMF's offer of help. Repairs began in 1994 and were completed in the late spring of 2000. Today the Tempel serves as a synagogue for Jewish groups visiting Krakow and for the larger religious ceremonies of the local congregation. It also functions as a concert hall because of its excellent acoustics. In addition to WMF, the Municipality of Krakow and the Citizens' Committee for the Renovation of Krakow's Monuments assisted the work, led by Ronald S. Lauder, chairman of the Jewish Heritage Program and WMF vice chairman.

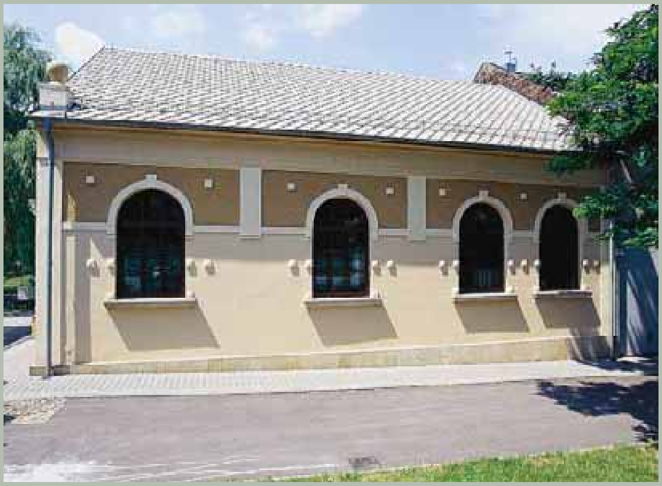
As a manifestation of separate and distinct Jewish culture, the original builders of the synagogue intended that it not resemble a church but rival the best of them. Located at the entrance of Kazimierz, an old former Jewish district within Krakow, it was positioned and designed to dominate this 19th-century residential and commercial neighborhood. Similar to other examples of Reform architecture of the period, the main facade is a freely reinvented eclectic mix of Romanesque and Gothic motifs. Inside, the prayer hall shape derives from both Neoclassic and Renaissance sources, while walls, ceilings, cornices, and balustrades are patterned with painted and gilded Moorish ornamental motifs from the Alhambra. The plan is elongated and culminates in the Holy Ark at the east end. Like all Reform synagogues, it had no central reader's platform or table (bimah), although today a small bimah is located close to the ark to accommodate Orthodox worship.

Architect and journalist Mildred F. Schmertz is a former editor in chief of ARCHITECTURAL RECORD.

PHOTOGRAPHY: COURTESY WORLD MONUMENTS FUND (THIS PAGE AND OPPOSITE, BOTTOM); WMF/JACEK KUBIENA (OPPOSITE, TOP)



Chevra Lomdei Mishnayot Synagogue, Oswiecim: This little synagogue in the Krakow region was completed in 1930; shown here (top) as it appeared in 1941 during the Nazi occupation. The brick-with-stucco facade and the tile roof have been carefully restored (middle). The synagogue adjoins and is part of the newly created Auschwitz Jewish Center (bottom).



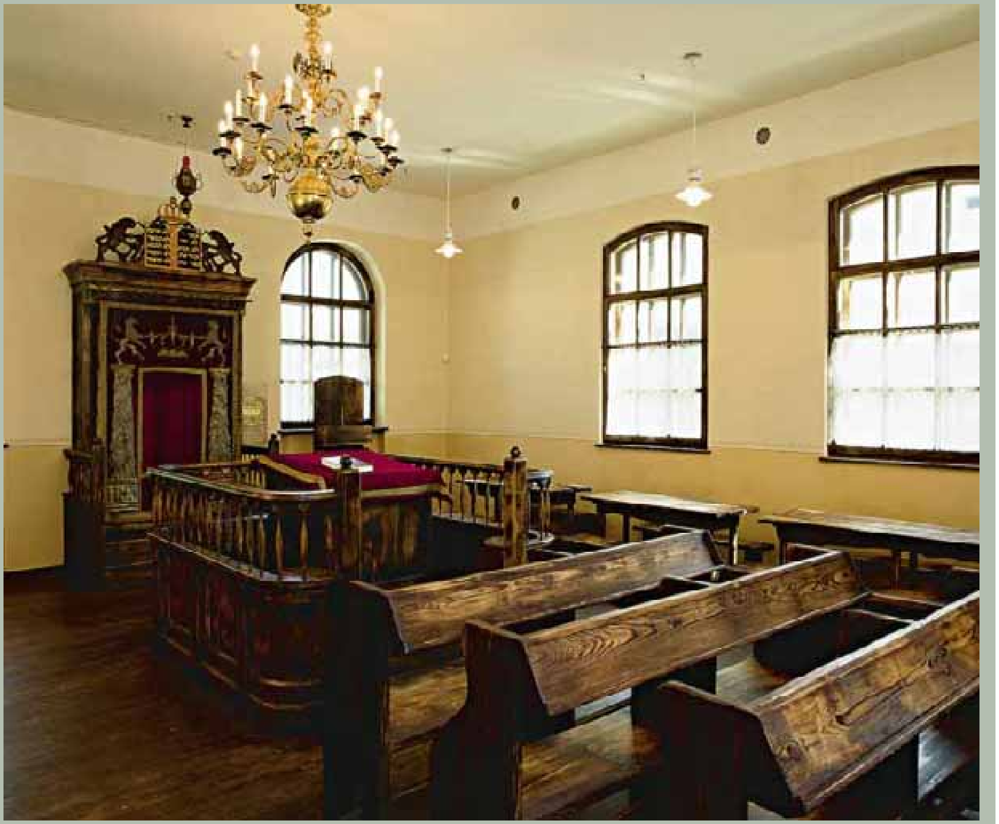
According to WMF vice president John Stubbs, "After restoring the outer shell, our policy for the prayer hall was to be one of conservation, as distinct from heavy-handed restoration. We didn't want this great room to look like new; instead it was to be a survivor of World War II, with a long history of previous use." Stubbs and the WMF team—Polish restoration architect Janusz Smolski, preservation consultants Roman Kozlowski and Pawel Karaszkiewicz, and preservation student Mary Culver—were pleased that the original interior finishes had for the most part survived and possessed the patina of age. Given this, there were long discussions about the patina. Should it remain softly faded? Can we allow it to shine or glow in some places? "Everything we did was discreet and measured in our effort to blend old and new," Stubbs remembers.

A cultural icon is reborn in Oswiecim

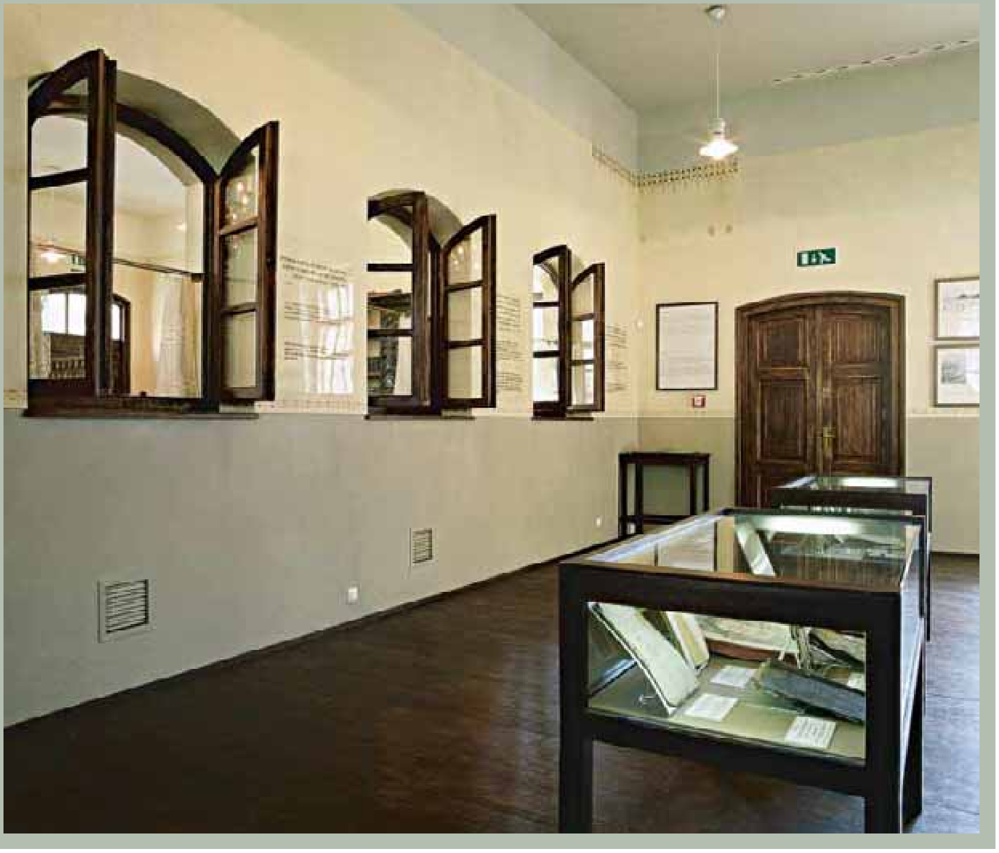
In 2001, skilled Polish architects and preservationists, under the direction of New York architect Arthur Rosenblatt of RKK&G and Polish architect Ryszard Swietek, completed the conservation, restoration, and adaptive reuse of a little synagogue in Oswiecim, in the Krakow region. Today it is an industrial town of nearly 50,000 people, but only 10,000 lived there before World War II, and half were Jews. The German name for the town is Auschwitz, and the former death camp is less than two miles away. The Nazis destroyed the town's main synagogue, but left intact a small one, the Chevra Lomdei Mishnayot Synagogue, built between 1928 and 1930. Like the Tempel Synagogue, it is one of Poland's few remaining centers of lost Jewish life and is of immense historic and cultural importance simply because it still exists. And it is still there, like the Tempel, because the Nazis had a use for it, first as a place to store munitions and later as a warehouse.

The decision to bring the little building, which had most recently been used as a carpet warehouse, into the mainstream of Jewish pilgrimage to and from Auschwitz-Birkenau was made by the New York–based Auschwitz Jewish Center Foundation and a similar Polish-based group. The philanthropist Fred Schwartz, once known as "Fred the Furrier," established the foundation in 1995. After five years of lobbying, Schwartz persuaded the government of Poland to make the synagogue property the first to be returned to the Jewish Community of Poland under a 1997 national law regarding restitution of prewar Jewish communal lands. Because Auschwitz-Birkenau has no specifically Jewish place for visitors seeking quiet and spiritual comfort after their death-camp visit, Schwartz created the Auschwitz Jewish Center and acquired the synagogue to be that place. On behalf of the cen-

PHOTOGRAPHY: COURTESY STATE MUSEUM IN OSWIECIM (TOP); © RADEK KURZAJ (MIDDLE AND BOTTOM)



The original ark, benches, and bimah of the prayer hall were lost when the Nazis first converted the synagogue into a munitions warehouse. The new furnishings (above) were built following clues offered by old drawings and photographs. The former women's section (below) serves as an extension of the exhibition space in the Auschwitz Jewish Center. The windows connecting it to the main prayer hall have been restored.



ter, the Ronald Lauder Foundation purchased the large house next door to be remodeled as a small museum that would exhibit photographs and slide and film presentations of prewar Jewish community life, and include a room for communal gathering and an administration office.

The synagogue is a gabled building of stuccoed brick walls and a tile roof on wood trusses. While it was still a warehouse, except for two plaques concealed by rolls of carpet, the interior gave no clue that it was once a place where people came to pray. Ark and bimah were long gone. Original doors were filled in and concealed, with new doors added elsewhere, and the interior openings in the wall that divided the women's section from the main prayer hall were plastered over. The interior space had been badly diminished by replacement of the original ceiling by a lower one that dropped below the arches of the windows, sealing them off at the springline.

Because it was a secular building, the two-story house could be renovated and altered to become a museum. The synagogue itself, however, as a priceless survivor of the Holocaust, was restored to its original condition, except for the women's section, which, while carefully restored, serves as an extension of the adjoining museum.

Rosenblatt and his team renewed the stucco colors and projecting masonry patterns on the main facade and installed a new ceiling at the original height, allowing the formerly blocked-in window arches to emerge inside and out. A new ark was placed on the eastern facade, and a study of the building's foundations revealed the position, size, and shape of the original bimah that they then duplicated. Guided by old photographs and drawings of similar synagogues, the architects and preservationists assumed that the carpentry of the bimah, benches, and shelving would have been plain and practical, with a dark varnish, and so they were newly made.

Rosenblatt's conservators, Maria and Aleksander Filipowicz, like their colleagues at work on the Tempel interiors, took a similar interest in choosing the appropriate level of restoration of ornament. Careful peeling of layers of wall paint uncovered a frieze pattern under the ceiling that they were able to replicate. In the interest of conserving what was there instead of making new, they elected not to replace the pattern everywhere, but only along walls where traces were found. In discussing his work at Oswiecim, Rosenblatt often refers to the skills of Sweitek and the Filipowiczes. "They brought to this little synagogue the highest possible level of care and craft, equal in quality, if not in volume and scope," he says, "to the conservation effort made for the Tempel Synagogue in Krakow." ■

PHOTOGRAPHY: © RADEK KURZAJ

Photographs by Elliott Kaufman

In 1903, the Republic of Panama, a country that was lopped off of Colombia at the behest of Teddy Roosevelt, signed a treaty with the United States to allow the construction of an interoceanic ship canal. It was the Apollo Program of its time, demanding that engineers conquer unprecedented technical problems in an adverse climate where yellow fever and malaria epidemics often raged. Back in Washington, Congress and the White House often waged political war with the builders, second-guessing nearly every decision they made. When it was completed in 1913 at a cost of $387 million, the canal represented one of the most expensive construction projects ever undertaken.

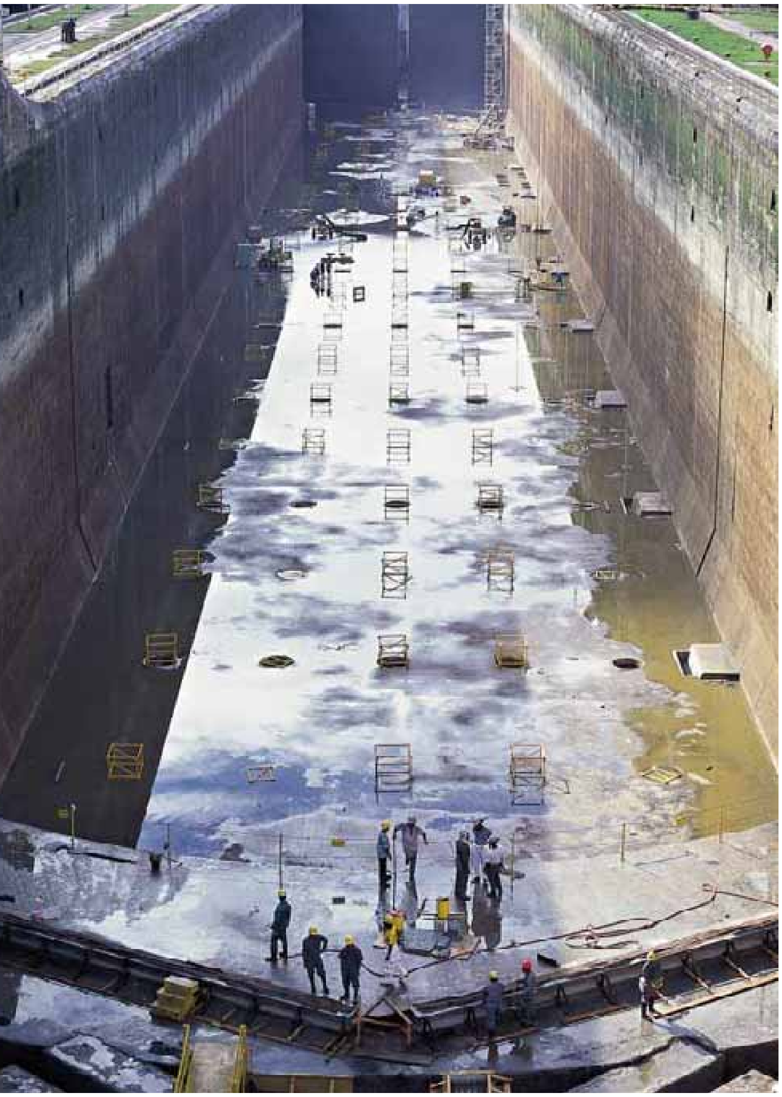
In 1977, the canal became a potent symbol of how the U.S. perceived its position within shifting world politics. At that time, President Carter signed a treaty that would cede control of the canal back to Panama on December 31, 1999. He believed that the long-term political interests of the United States were best served by treating Panama as a democratic partner, rather than appearing to exploit it as if it were a colony. Architectural photographer Elliott Kaufman visited Panama four times in 1999, to document the canal during its last year under the American flag. *Charles Linn, FAIA*

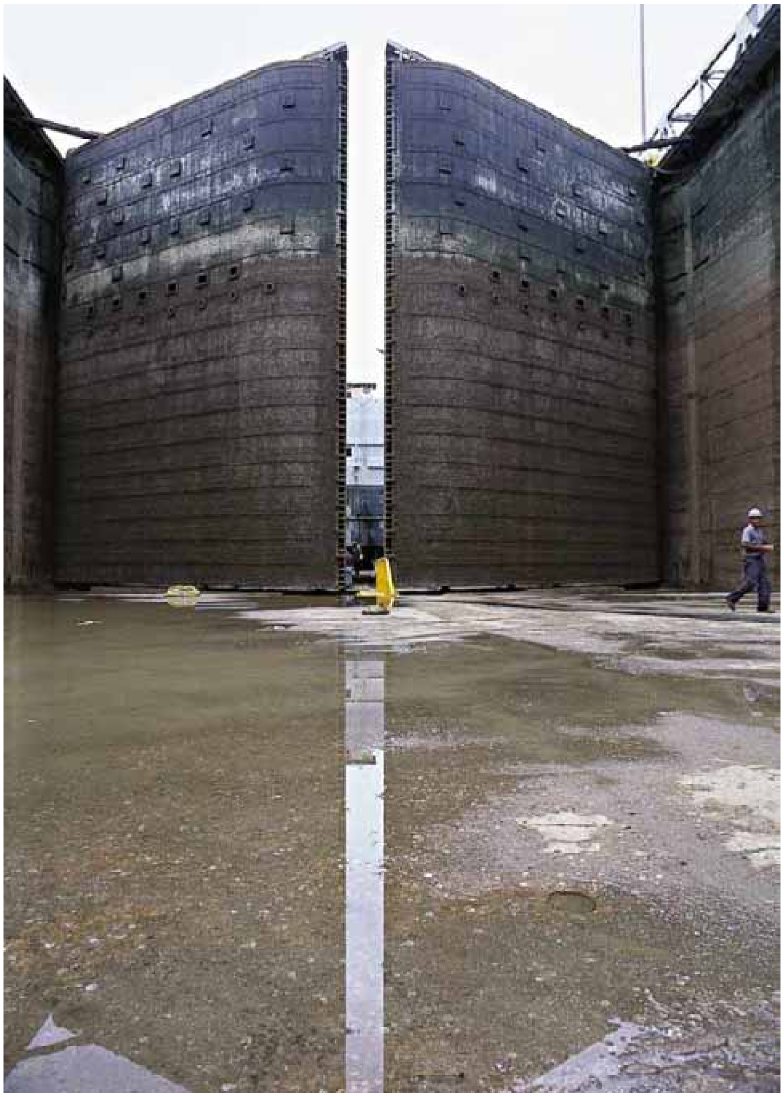
The Panama Canal:

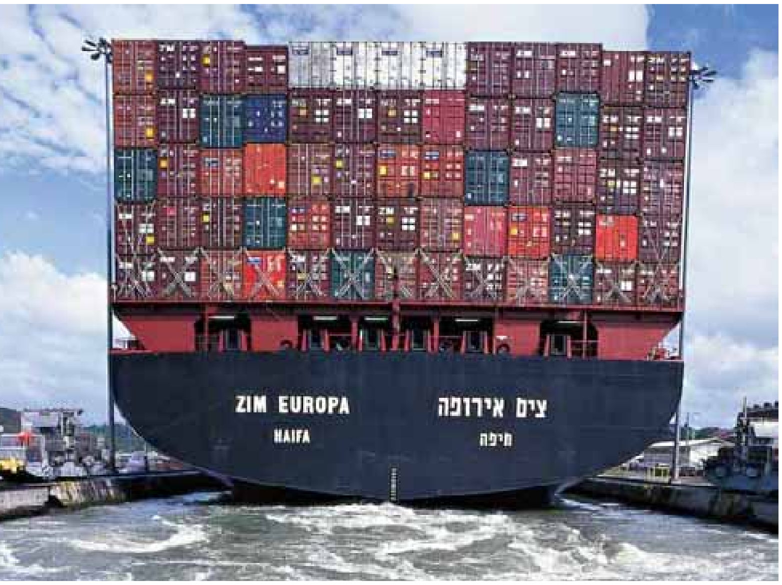
a monument to perseverance

and technology

Miraflores Lock gates during overhaul (opposite, top left). A ship passes through the Gaillard Cut (above), where countless landslides slowed construction.



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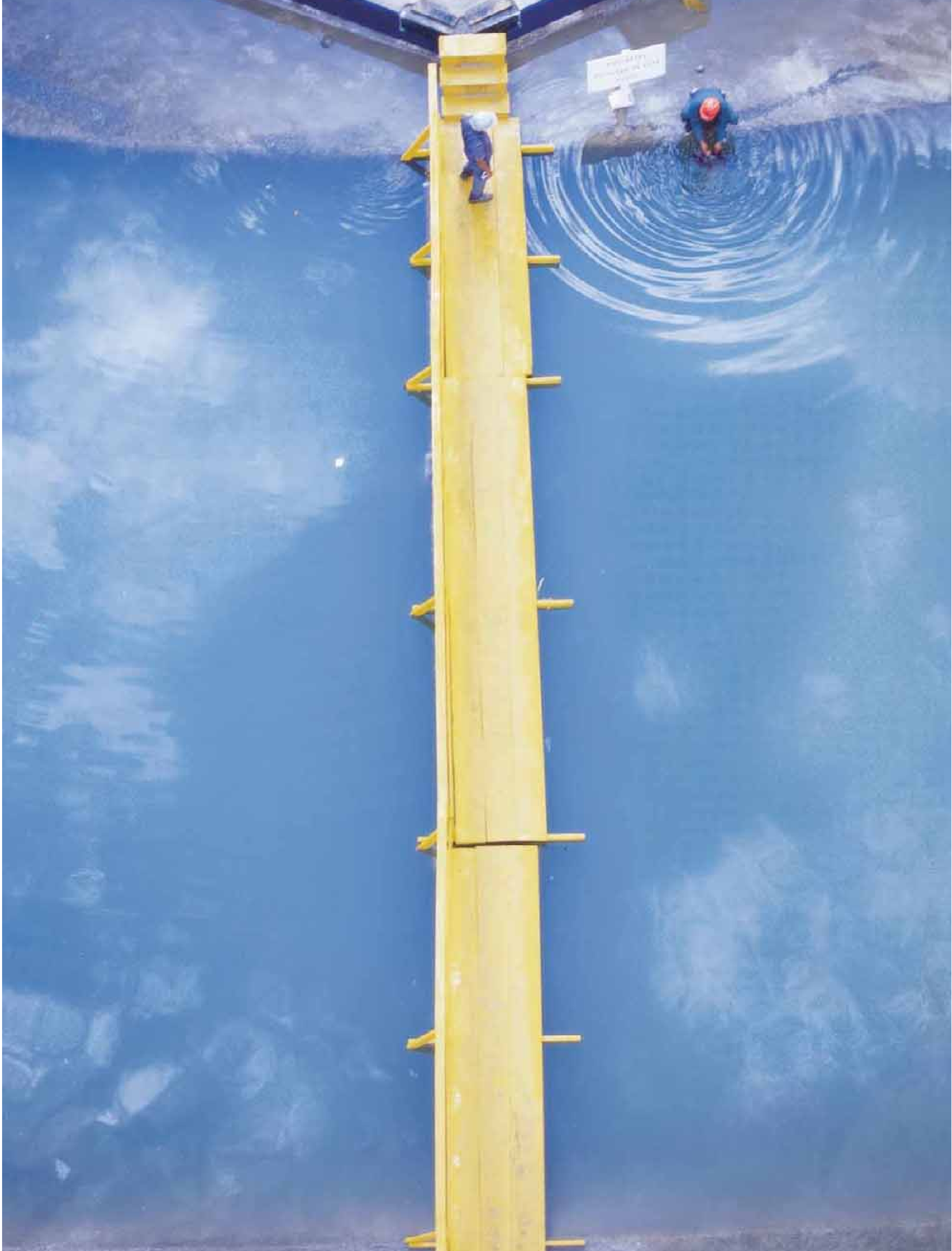
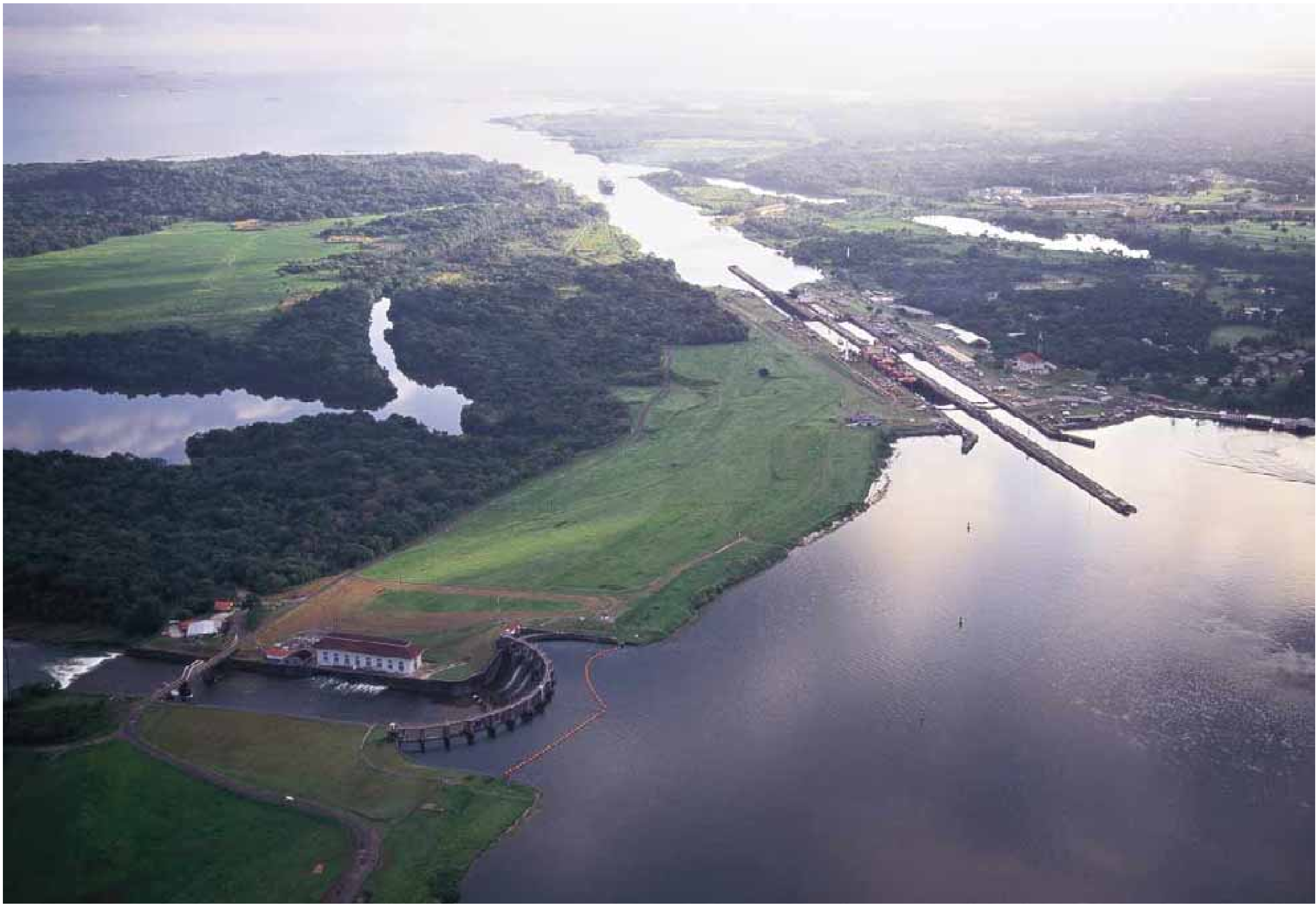
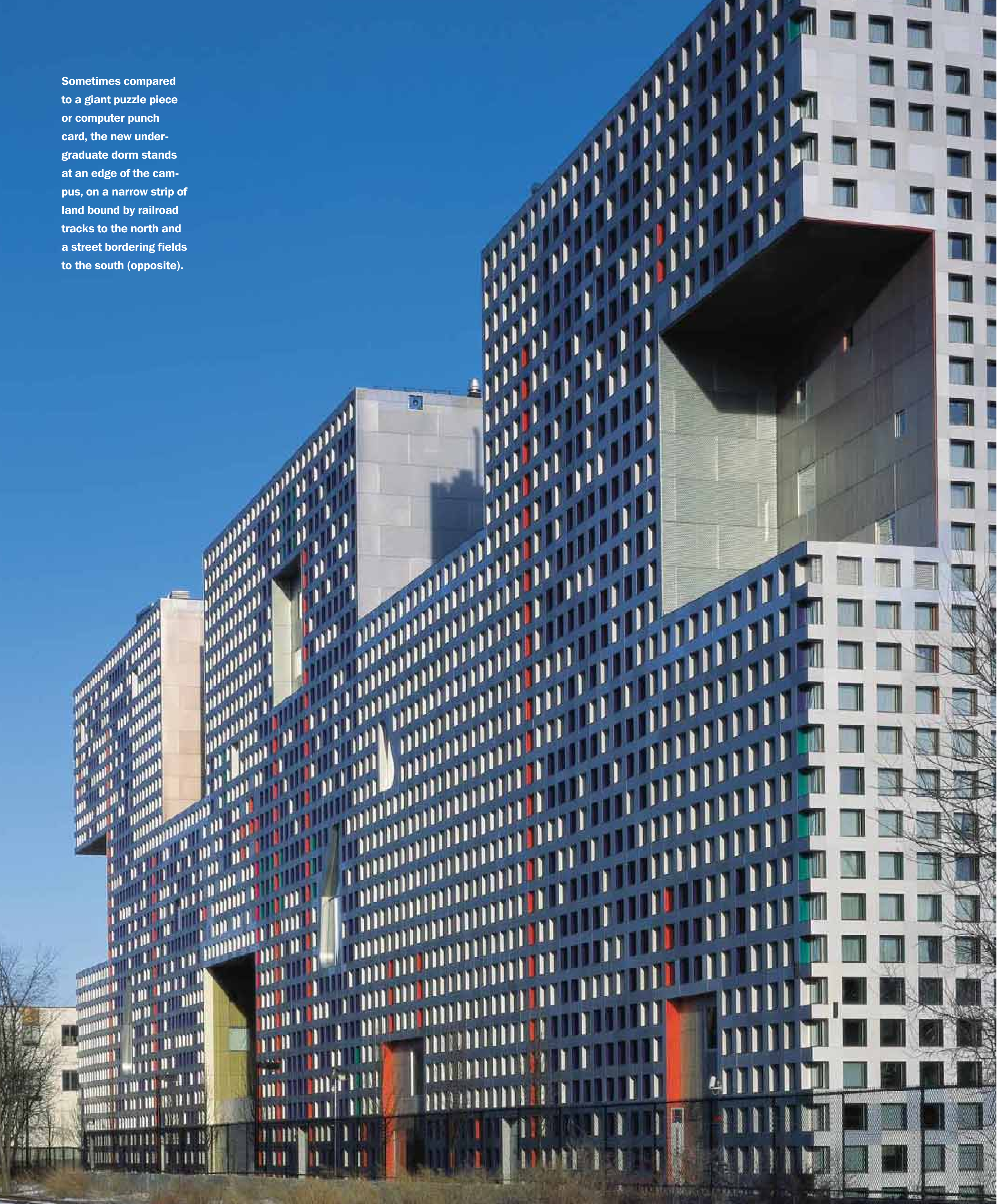
A Panamax-class container ship can be no wider than the one shown here (lower left). Periodically the locks are drained so that the machinery and culverts can be overhauled and repaired (all other photos).



A spillway (top) that controls the level of Lake Gatun can also be seen in an aerial view (opposite). A ship in the lock at Miraflores (bottom left) and the culvert that supplies water to it (bottom right).

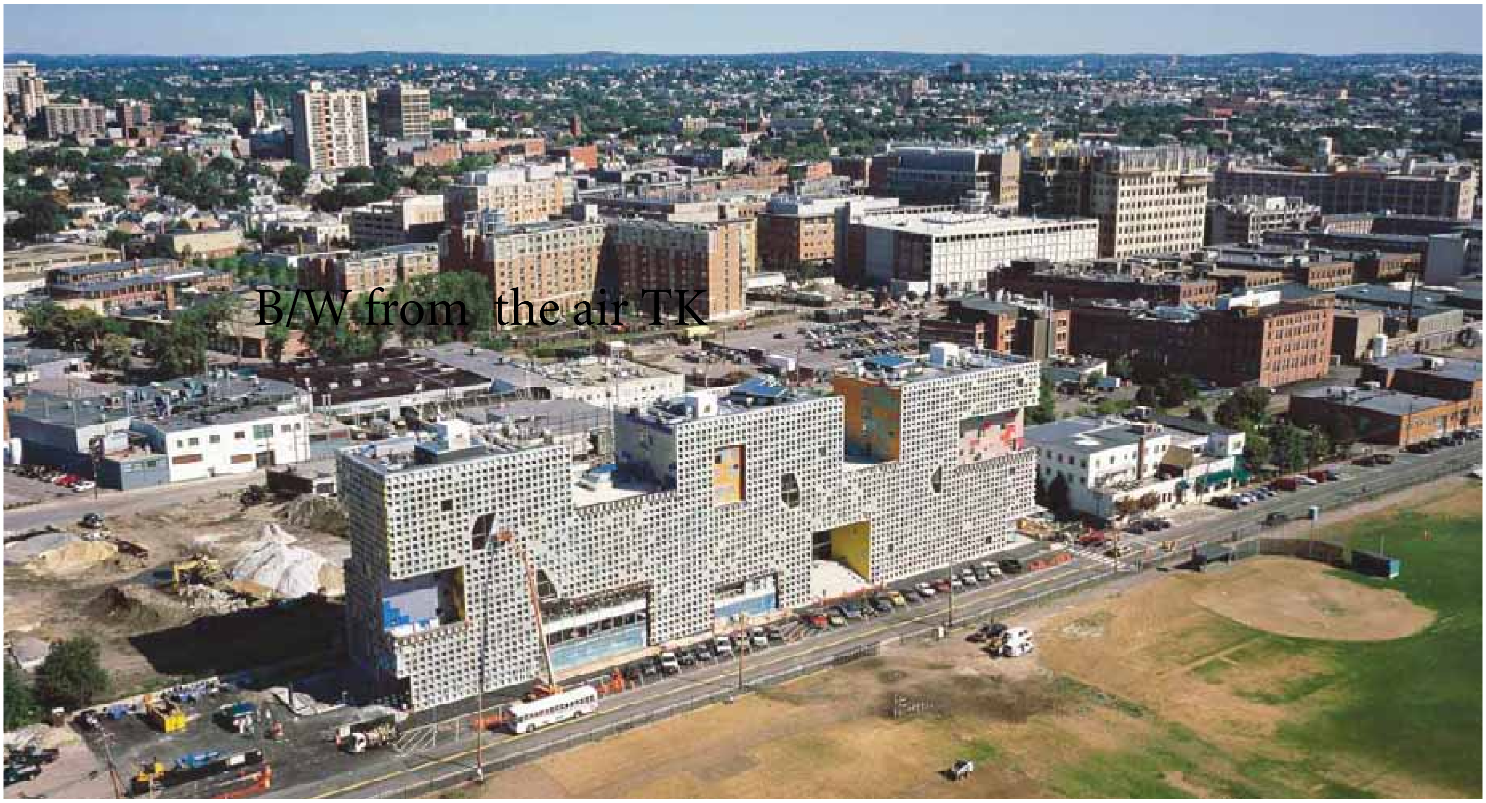


Gatun Lake, seen at the lower right of the top photo, was created to supply water to the locks. Two views of the Gatun Lock from the Caribbean Sea (bottom left and right).



Sometimes compared to a giant puzzle piece or computer punch card, the new undergraduate dorm stands at an edge of the campus, on a narrow strip of land bound by railroad tracks to the north and a street bordering fields to the south (opposite).

Steven **Holl** experiments with constructed "porosity" in his design for **SIMMONS HALL**, an undergraduate dorm set in the scientific realm of MIT



By Sarah Amelar

Instead of a brick urban wall, we envision … a porous membrane made up of four or five individual buildings," architect Steven Holl, AIA, wrote in 1999 as he embarked on the design of Simmons Hall, his recently completed dormitory at MIT. Rejecting the university's development guidelines for the narrow strip of land bound by railroad tracks to the north and Vassar Street, a thoroughfare bordering playing fields, to the south, Holl proposed his own master plan. Focused on a "porous building morphology," it called for a row of "permeable" rather than barrier buildings, interspersed with pocket parks.

One goal, he argued, was to respect existing view corridors from the residential district gradually taking shape in an industrial landscape just over the tracks, and the Charles River, glimpsed through a row of MIT buildings along the south edge of the playing fields. Listing the ideal qualities for Simmons Hall, he supplemented transparency, porosity, and permeability with "screen, net, aperture, passageway, sieve, unrestricted, honeycomb, riddle, sponge, opening, hole, cribriformity, pervious."

Well, maybe cribriformity wasn't the driving force. But what really is this porous building morphology? Holl has in the past borrowed freely and loosely from the language and concepts of biology to generate architectural form—as with his Kiasma art museum in Helsinki, a structure alluding to a genetic process [Record, August 1998, page 86], and his Het Oosten "sponge" building in Amsterdam [Record, October 2000, page 126]. So, on the richly scientific terrain of MIT, why not begin with permeable membranes and natural sponges? But, beyond that starting point, how does Holl's perforating approach—expressed both literally and metaphorically—serve Simmons Hall, the students, and the surroundings?

Often likened to a giant computer punch card or notched puzzle piece, this 350-bed dorm now stands 10 stories high, 385 feet long, and 53 feet deep—wrapped almost entirely in a matrix of 2-foot-square windows (5,538 of them). Though not part of Holl's initial concept, the gridded shell, a thick layer of precast-concrete panels clad in sanded aluminum over insulation, actually forms an exoskeleton, bringing the building's heavy structure to its outer surface. It's a solution devised by structural engineer Guy Nordensen, who developed a high-strength precast system, called Perfcon, specifically for this project, providing essen-

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Project: *Simmons Hall, MIT, Cambridge, Massachusetts*
Architect: *Steven Holl Architects—Steven Holl, AIA, Timothy Bade, design architects; Timothy Bade, project architect; Ziad Jameleddine, Anderson Lee, assistant project architects; Peter Burns, Gabriela Barman-Kramer, Makram el Kadi, Annette Goderbauer, Mimi Hoang, Matt Johnson, Erik Langdalen, Ron-Hui Lin, Stephen O'Dell, Christian Wassmann, team*
Associate architect: *Perry Dean Rogers*
Engineers: *Guy Nordensen and Associates; Simpson Gumpertz & Heger (structural); Arup (mechanical)*

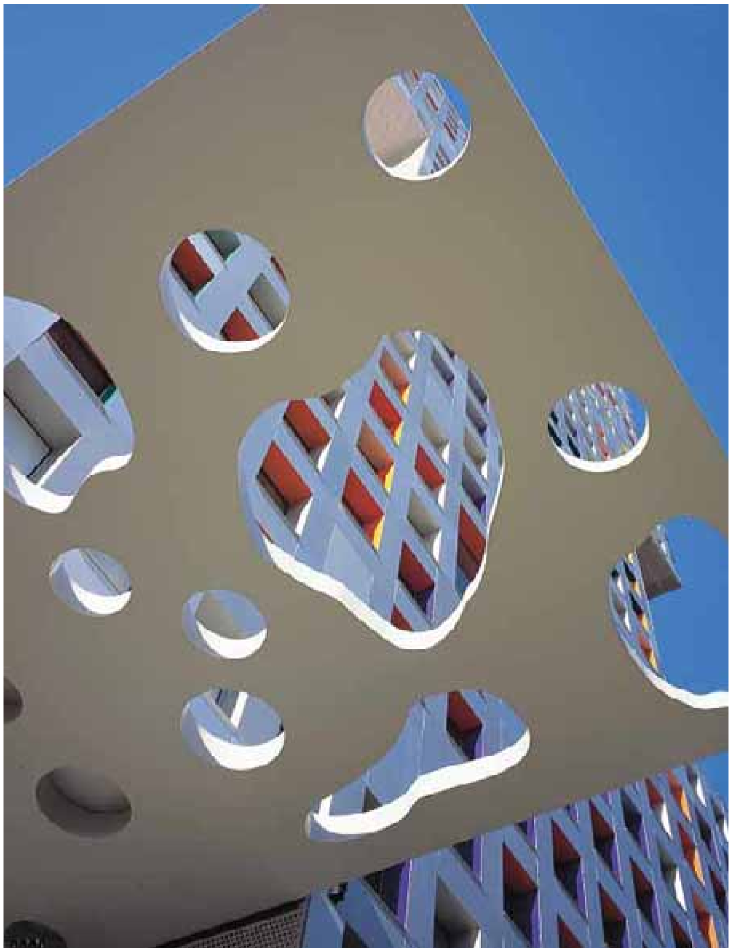
PHOTOGRAPHY: © PAUL WARCHOL, EXCEPT AS NOTED; ANDY RYAN (ABOVE)

tially a bearing wall that accepts a regular pattern of holes while allowing for such major structural variables as large openings and cantilevers.

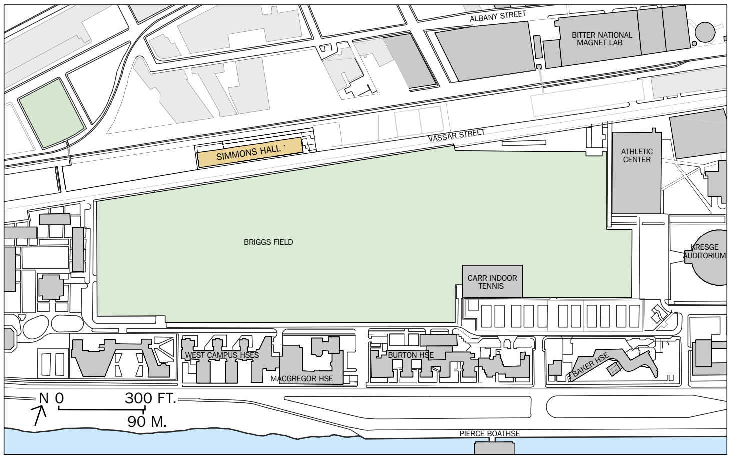
This muscular, rigid grid encases a massive creature very different from Holl's diminutive, ephemerally veil-like Het Oosten "sponge." Here, a large-scale grate—which, unmodulated, might have evoked a penitentiary—is playfully relieved by the insertion of huge rectilinear and amoebic openings, by large notches in the building's rectangular silhouette, and by flashes of primary color lining the big notches and deep window jambs.

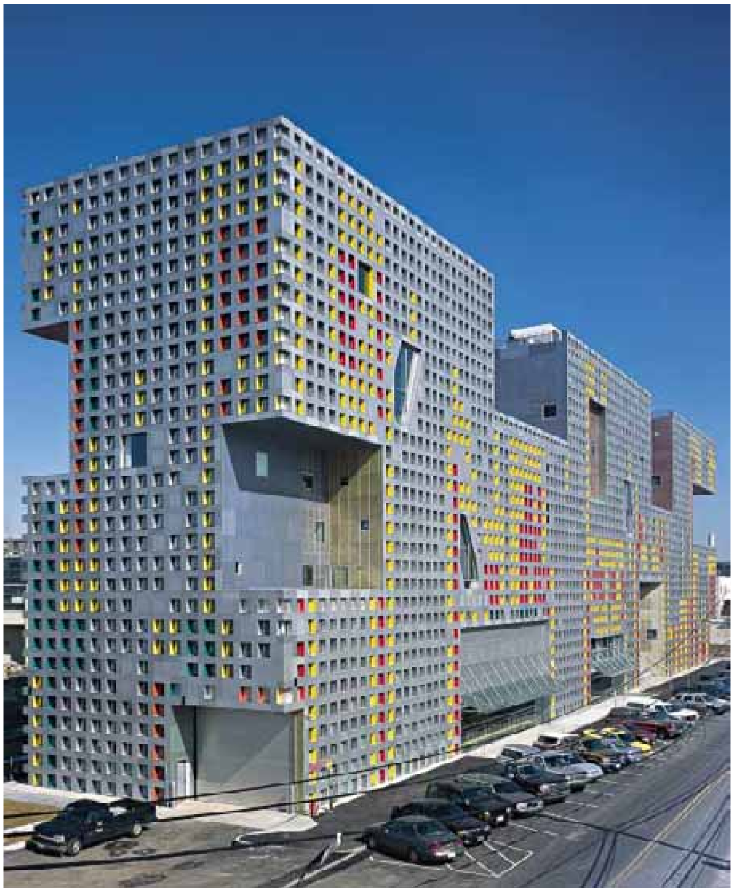
But the promise of literal front-to-back openings or even transparencies—as implied by Holl's master-plan diagrams of porous building possibilities—is hardly realized. With only the two roofline notches truly penetrating the entire volume, the building actually blocks views with the first seven or eight stories of its entire 385-foot length. Though its enormous crowning crenellations form three towerlike projections that successfully temper the reading of the dorm as a single megablock, the notion of a view-retaining "porosity" remains somewhat mythical here. Even a large opening at the base of the building—sheltering bleacher seats facing the field and a Dan Graham sculpture inside—stops short of offering a completely transverse portal or visual passageway.

A desire to create buildings with long, bridgelike spans or portions hovering high above the ground has recurred throughout Holl's career. Like Simmons Hall, most of these schemes have taken a superscaled, imposing, almost graphic overall form—as in his Spatial Retaining Bars proposal (1989) for apartment buildings configured as upside-down "L"s; his similarly shaped hotel/apartment design (1999) for Mexico's JVC Center [RECORD, June 1999, page 134]; and most recently, the crossbar tower proposal (2003), on which he collaborated for New York City's World Trade Center site [RECORD, February 2003, page 45]. Perhaps due in part to structural, budgetary, and circulation impracticalities of such grand, acrobatic gestures, many of these schemes remain

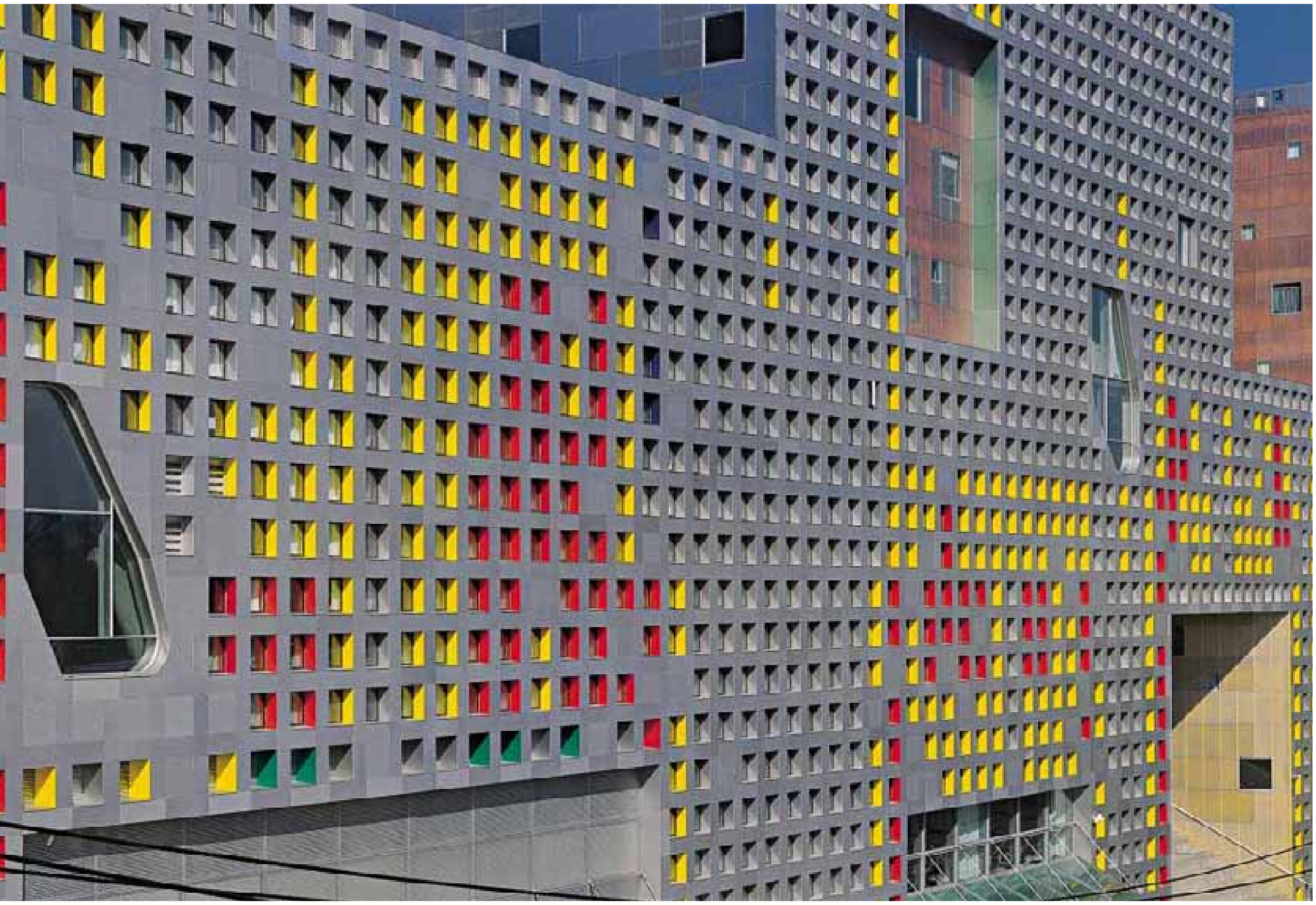


With its cast-concrete exoskeleton clad in sanded aluminum, the chameleonlike building changes appearance according to light conditions (this spread). Holes in the entry canopy (above) play against the grid's regular rhythm, providing a whimsical rendition of the porosity theme.





PHOTOGRAPHY: © ANDY RYAN (OPPOSITE, TOP)



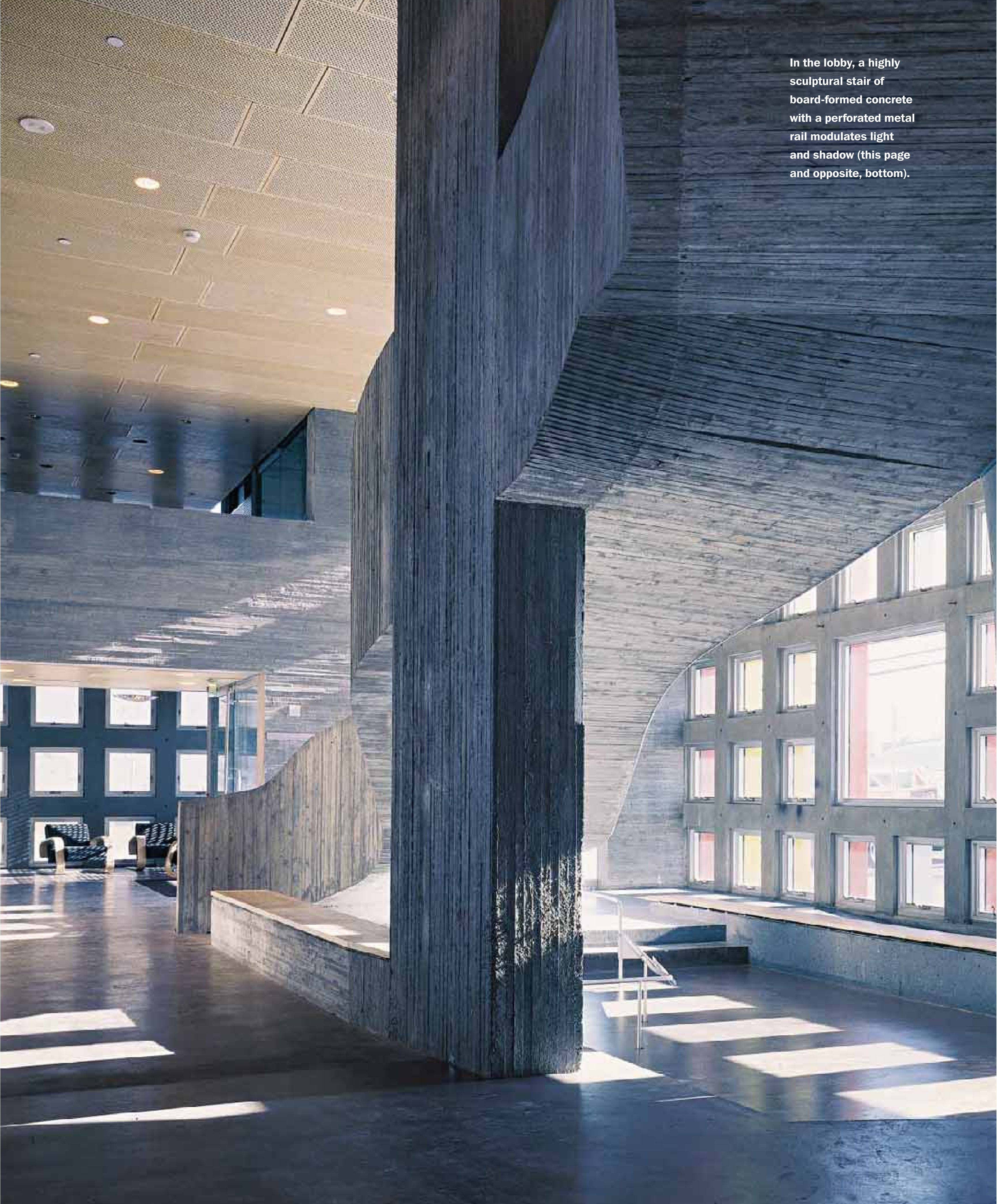
The facade's precast Perfcon panels allow for long spans without deep beams. Color within the window heads and jambs (left) presents a stress diagram of the structural members. The heavy grid was intended as a brise-soleil—to shade the high summer sun and let in low winter rays—with insulation beneath the aluminum cladding increasing the thermal mass. Daylight filters through the grid and a perforated metal stair rail in the lobby (below).

unbuilt. At Simmons Hall, the big lateral notches form only blind openings, in contrast to the architect's early sketches.

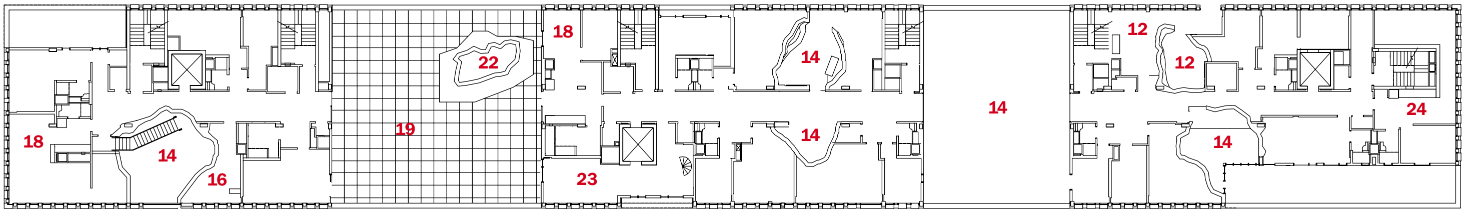
As an urban gesture, Holl's assertion that MIT's master plan needed greater openness, literally and perceptually, made a lot of sense. The campus, originally a Beaux-Arts scheme, had steadily lost definition since the 1950s, when its last building boom set a high standard with Alvar Aalto's Baker House dormitory and Eero Saarinen's Kresge Auditorium and Chapel. The current building campaign—which includes Simmons Hall, as well as structures by Fumhiko Maki, Frank Gehry, and others—has revived MIT's ambitions for world-class architecture. The projects also share a mission to enhance and increase the campus's communal spaces, indoors and out, and knit together its disparate parts. After all, this is a place still reeling from a shift, in recent decades, away from a predominantly male commuter population toward a coed and resident one—and, with that change, a pervasive awareness of isolationism among the students. Holl saw the importance of engaging not only the academic community, but also, to some extent, non-MIT neighbors, as he designed for a site known until recently as "Siberia."

So, Simmons Hall does not turn its back on the tracks, but shows similar faces to the university and its environs. In that sense, the dorm takes a conceptually open attitude. At the same time, all elevations of this substantial edifice offer curiously surreal scale readings. While the large openings help diminish its perceived size, vertical stacks of three windows per floor give the impression of a 30- rather than 10-story structure. And with apertures significantly smaller than standard windows, the predominant 2-foot grid, hardly a light lattice, creates a pattern whose density can read, paradoxically, as more closed than open. (For better or worse, you never get the illusion that you're glimpsing into the rooms.)

The overall perception, however, shifts with changing light. At



In the lobby, a highly sculptural stair of board-formed concrete with a perforated metal rail modulates light and shadow (this page and opposite, bottom).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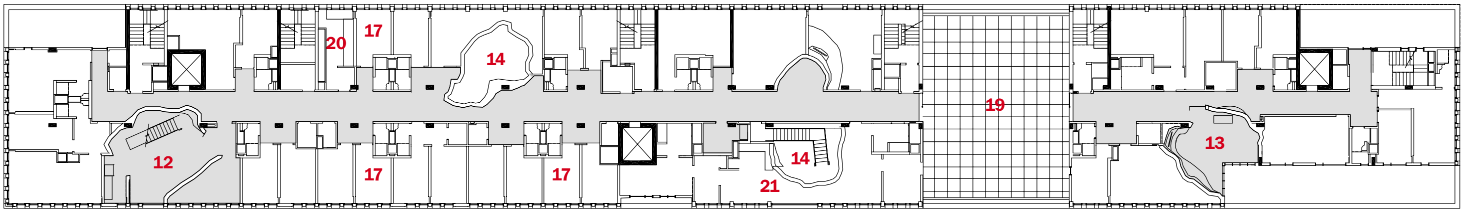
EIGHTH FLOOR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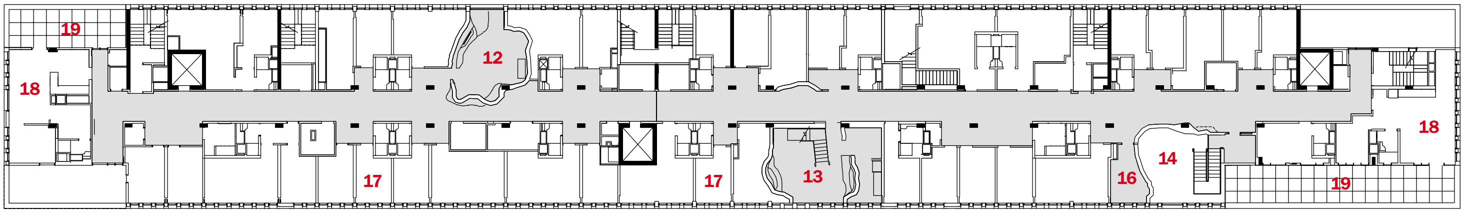
SEVENTH FLOOR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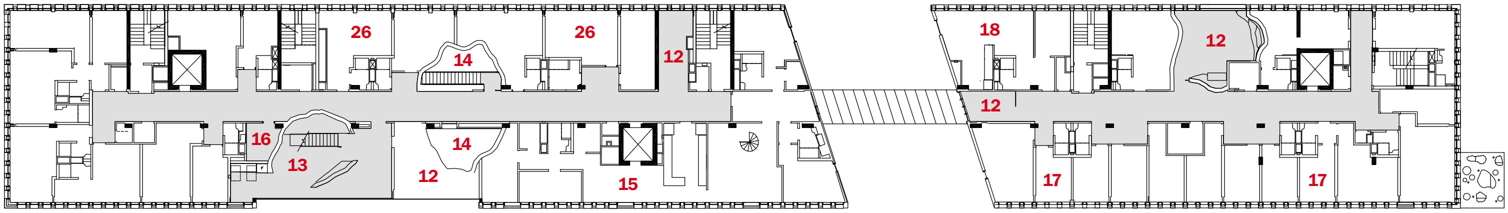
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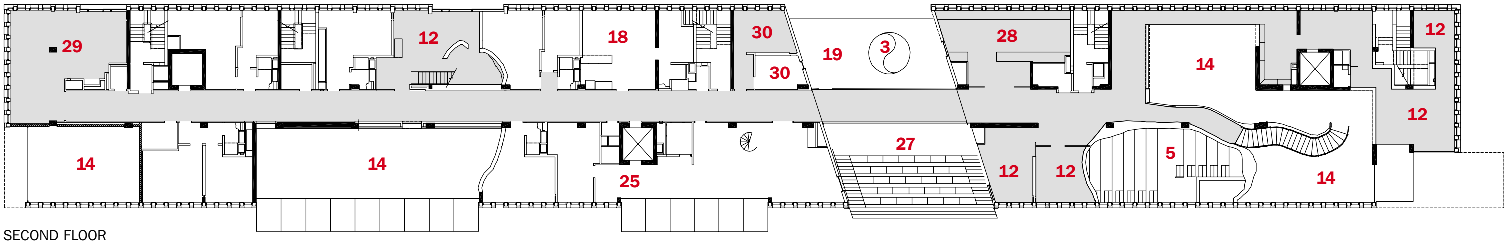
THIRD FLOOR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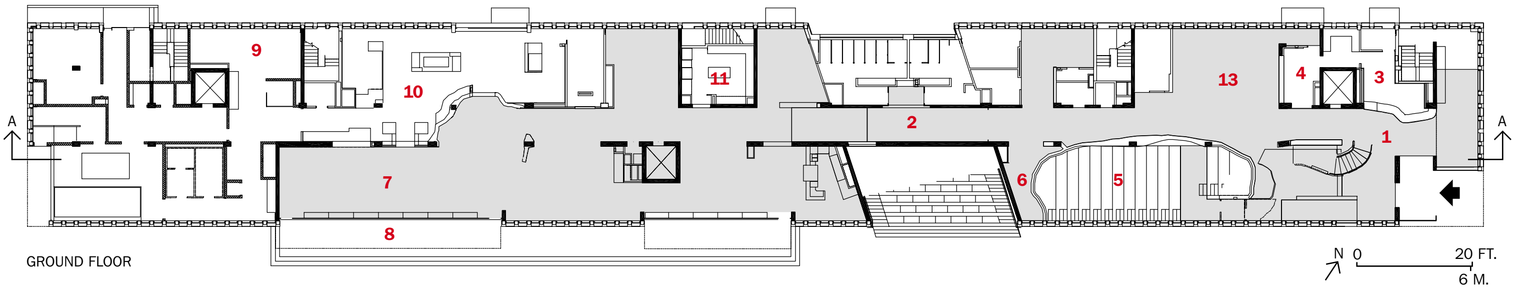
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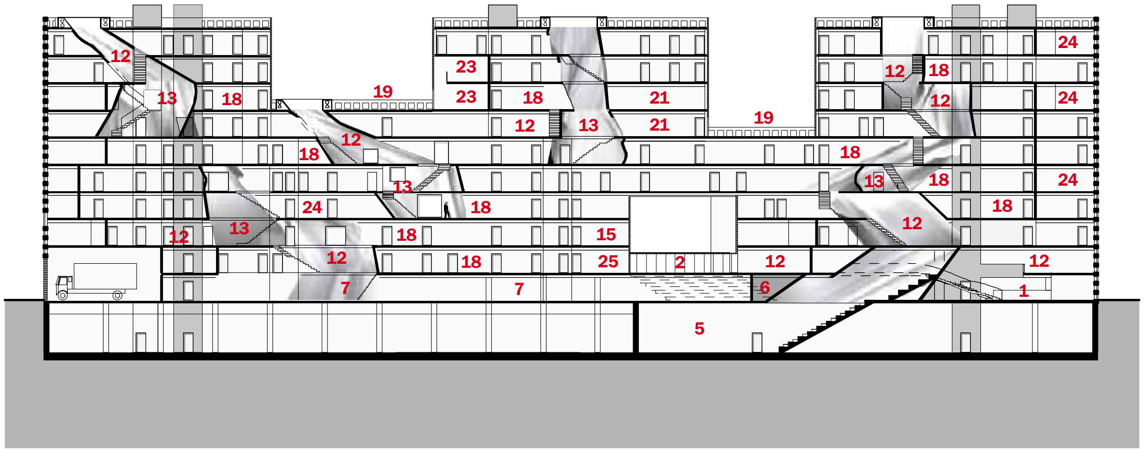
GROUND FLOOR

1. *Lobby*
2. *Glazed passage*
3. *D. Graham sculpture*
4. *Mail room*
5. *Multiuse/auditorium*
6. *Meditation*
7. *Dining hall*
8. *Outdoor dining*
9. *Prep kitchen*
10. *Servery*
11. *Student kitchen*
12. *Study*
13. *Group lounge*
14. *Open to below*
15. *Housemaster*
16. *Laundry*
17. *Typical single room*
18. *Graduate resident*
19. *Terrace*
20. *Photo lab*
21. *Assoc. housemaster*
22. *Skylight*
23. *Exercise*
24. *Visiting scholar*
25. *Housemaster reception*
26. *Typical double room*
27. *Bleachers*
28. *Computer lab*
29. *Game room*
30. *Music room*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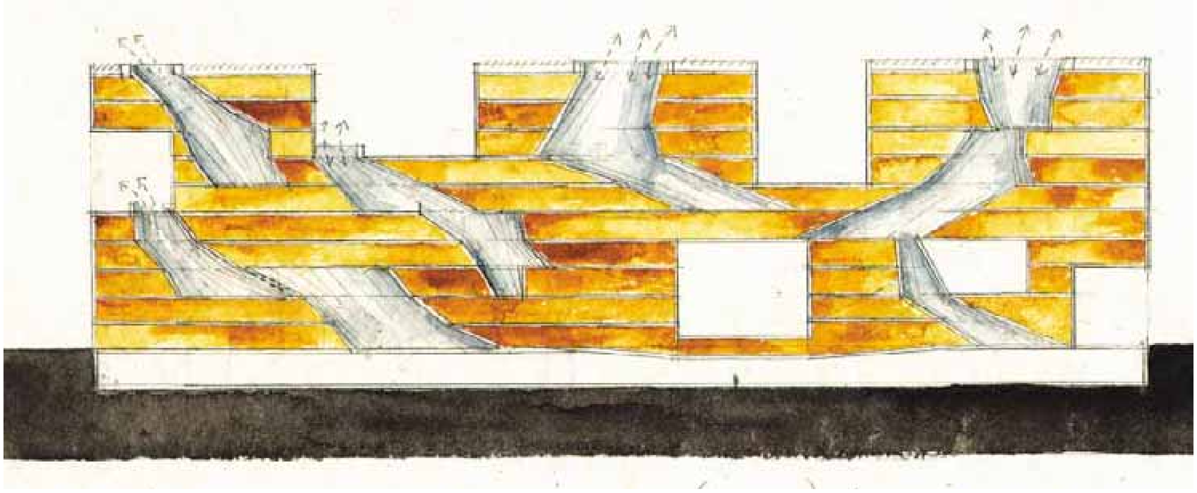
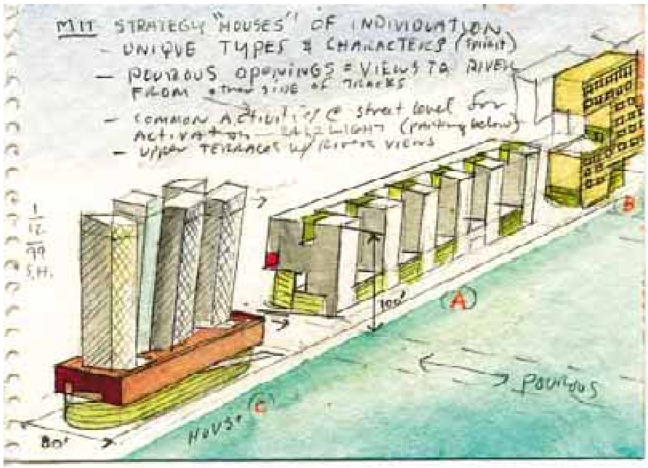
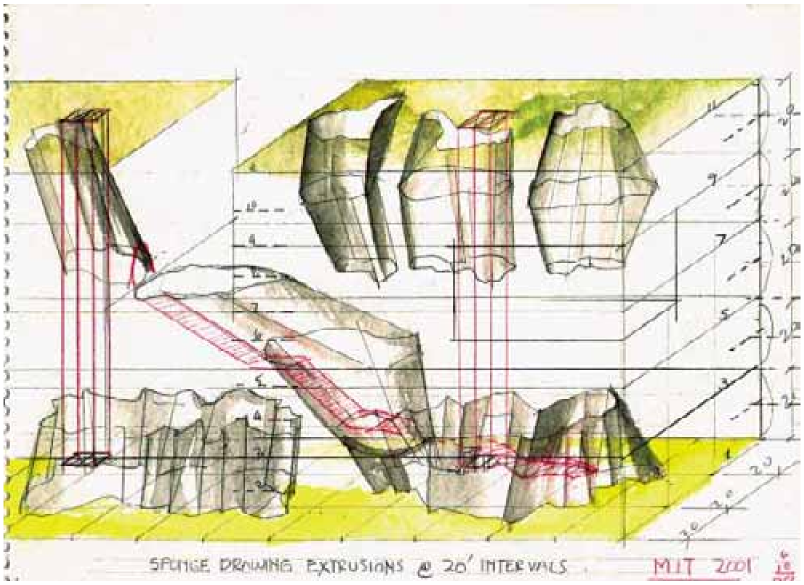
SECTION A-A EAST/WEST

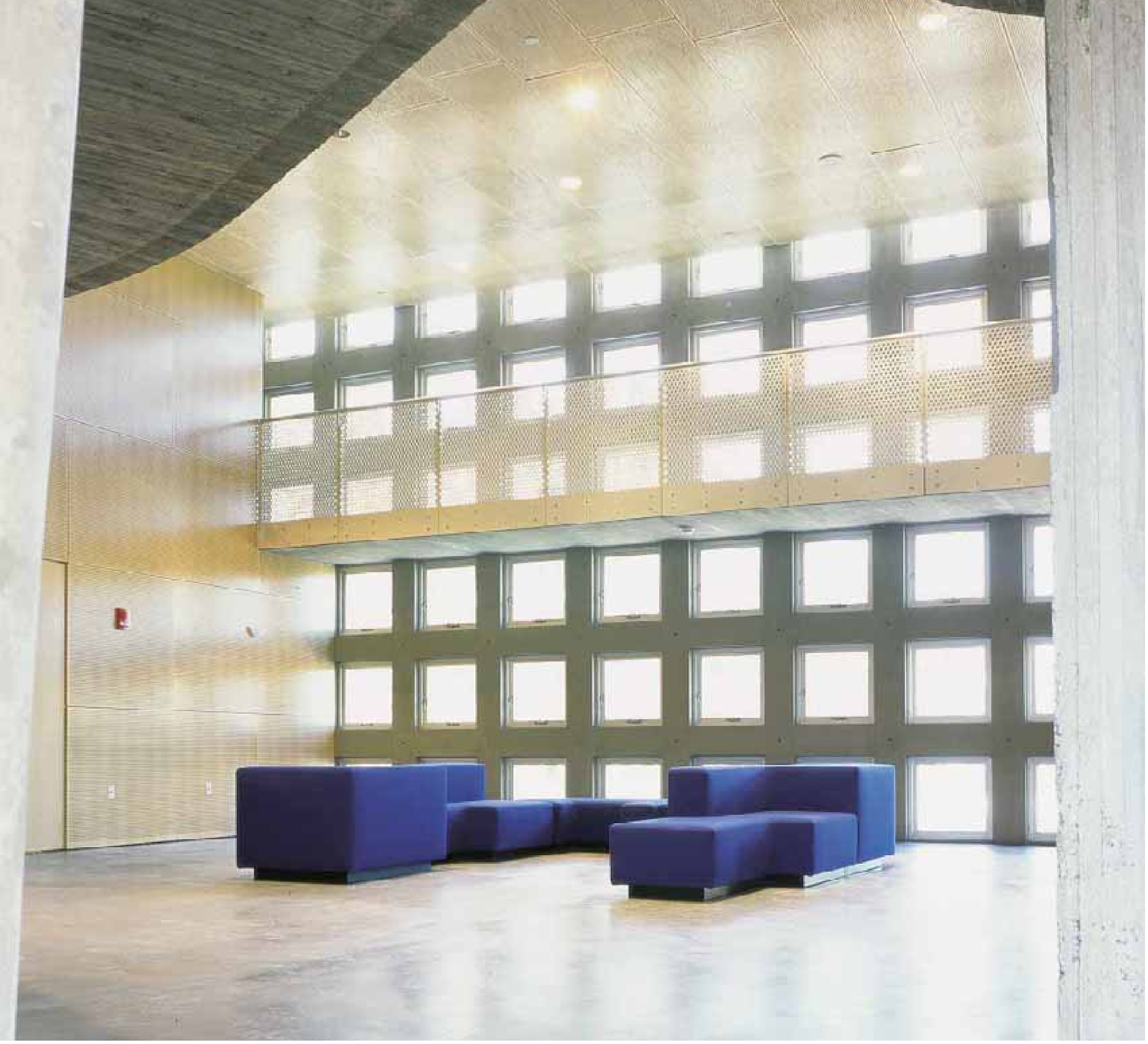


For his master plan, Holl sketched several variants of the "permeable," or "porous," building (right). The shapes of Simmons Halls' multistory lounges (below) derive from sponge prints. These sculpturally fluid spaces connect residential houses vertically within the dorm, encouraging student interaction. Holl also conceived of them as the building's "lungs," promoting vertical ventilation (as much as fire code permitted) and deep penetration of light and air.

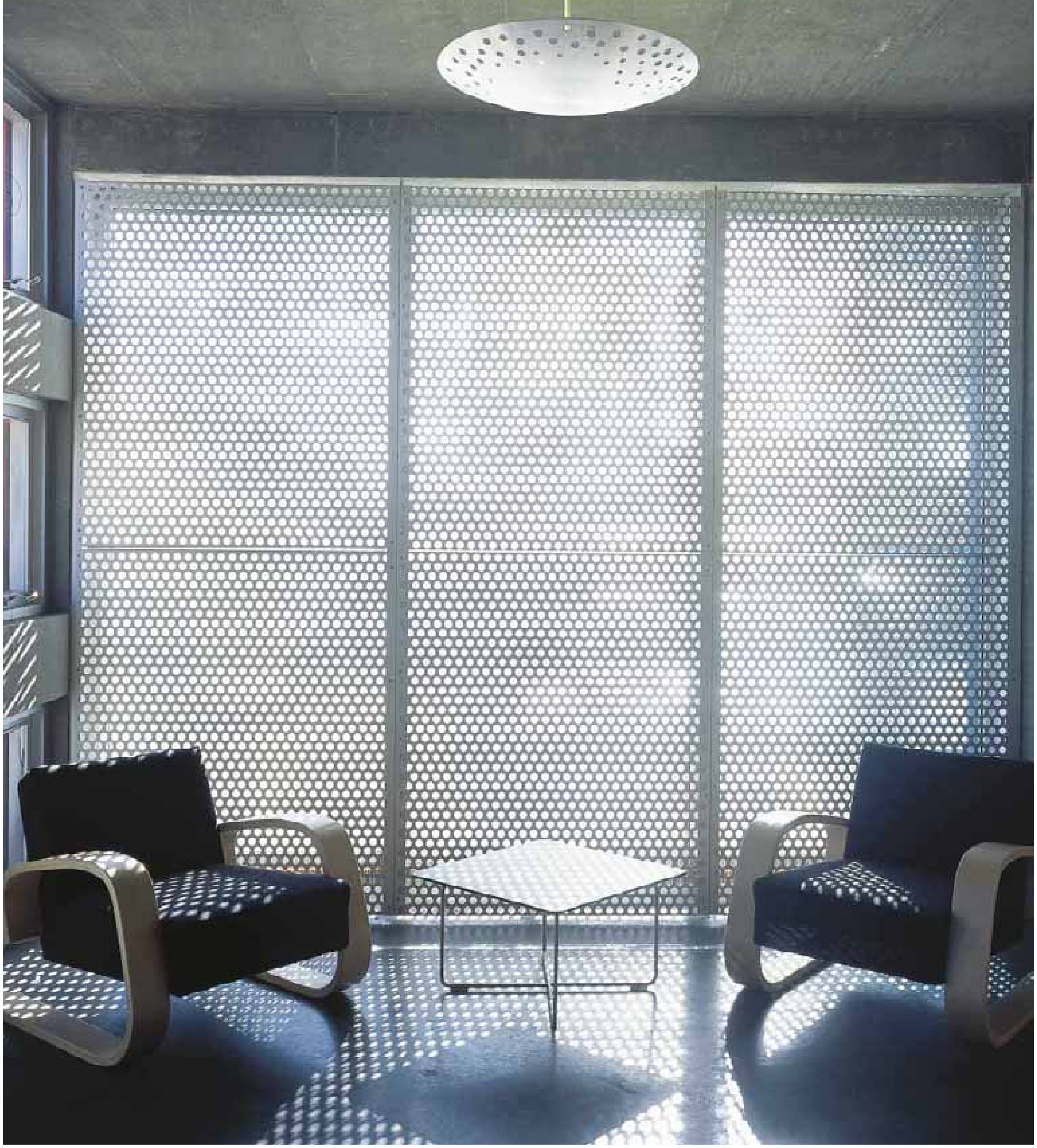

MIT STRATEGY "HOUSES" OF INDIVIDUATION
- UNIQUE TYPES & CHARACTERS (spirit)
- POUROUS OPENINGS = VIEWS TO RIVER FROM other side of TRACKS
- COMMON ACTIVITIES @ street level for activation — SKYLIGHT (painting below)
- UPPER TERRACES w/ RIVER VIEWS
1/12/99 S.H.
100'
(A)
(B)
POUROUS
HOUSE (C)
80'


SPONGE DRAWING EXTRUSIONS @ 20' INTERVALS
MIT 2001

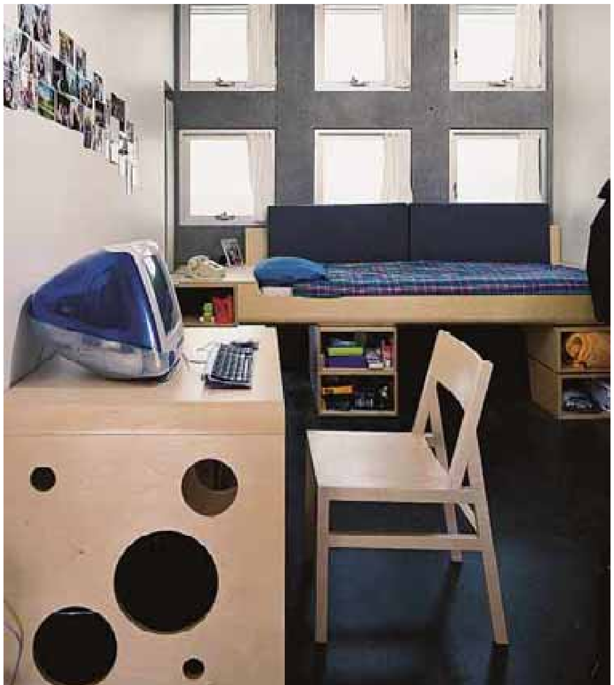
DRAWINGS: COURTESY STEVEN HOLL ARCHITECTS



Undulant lounge forms project into the corridors (left). Throughout the interior, the outer grid has a strong presence (above). Terraces are only accessible from such controlled spaces as graduate resident apartments (below).

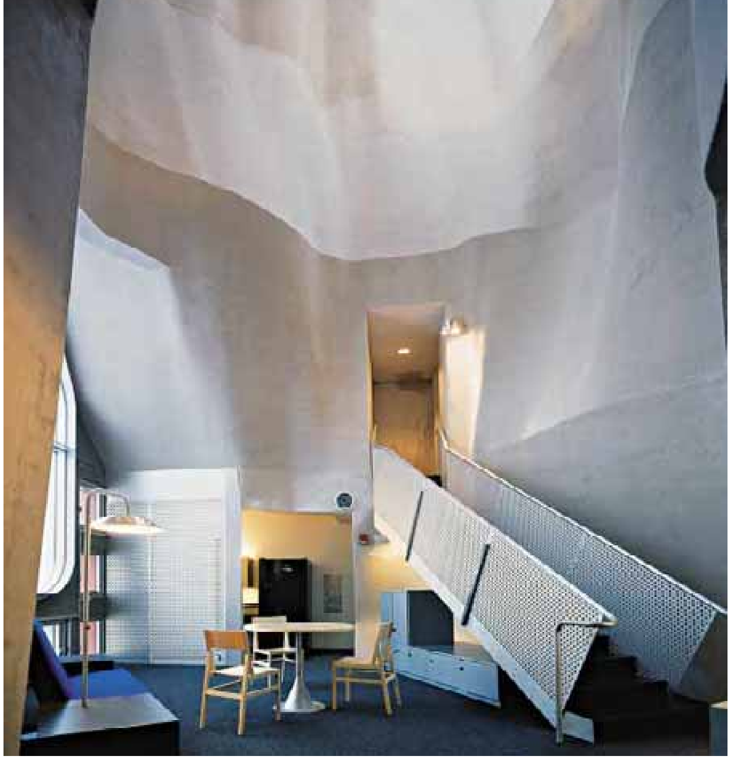


On the interior, variations on the theme of perforation abound (this page). Typical single dorm rooms have nine 2-foot-square windows, which are operable but restricted to an 8-inch maximum opening (bottom). Each window has its own separate curtain, which some students complain is inconvenient. Holl designed all the dorm room furnishings here, just as Alvar Aalto did at nearby Baker House. Punched with holes, the new furniture is intentionally "porous."

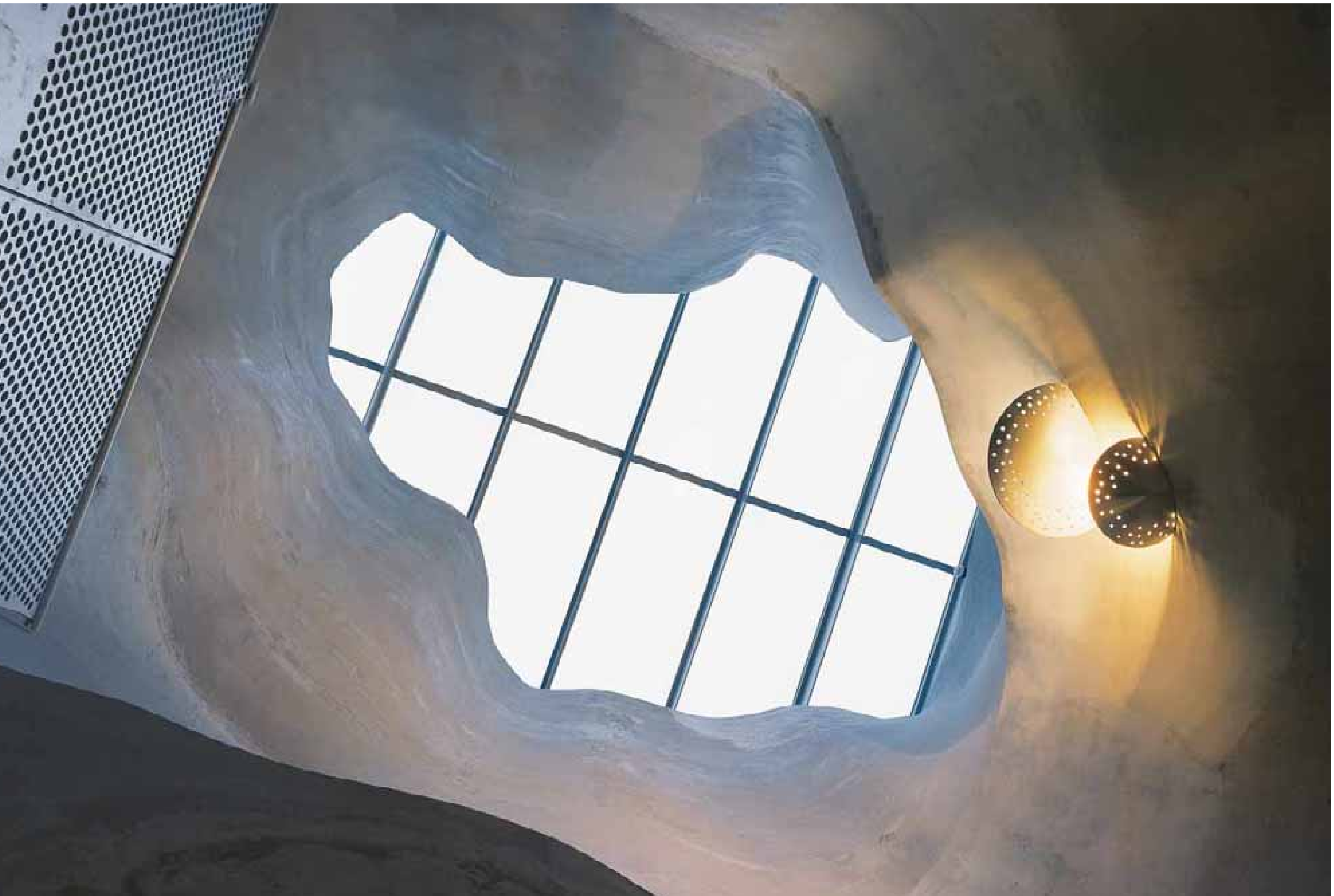


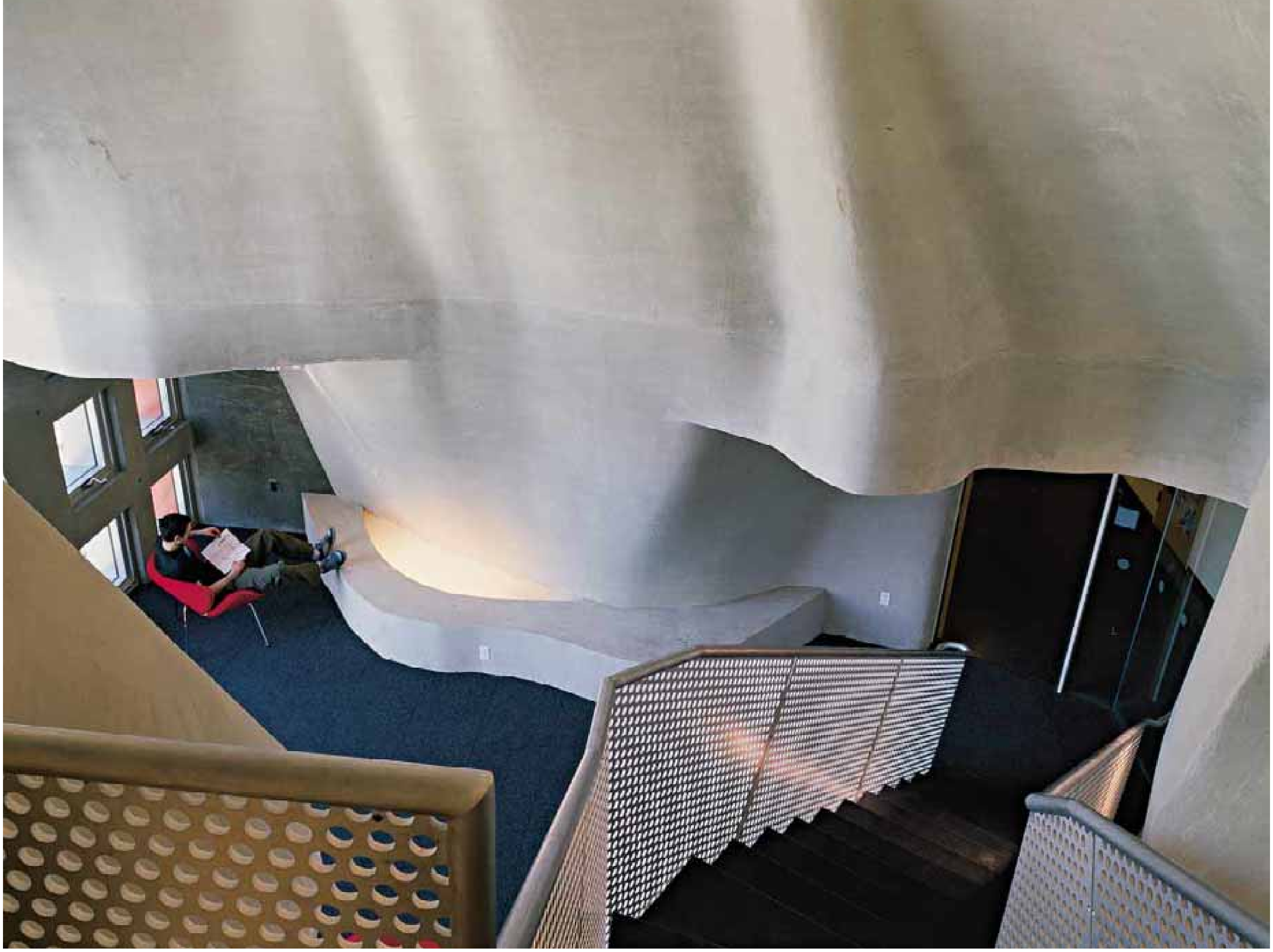
Kiasma, Holl learned a lot about the nature of matte sanded-aluminum cladding—which has exceptional chameleonesque properties, sometimes reflecting the blue sky, other times appearing dull and gray or luminous and silvery. Within the dorm's large notches, he added color cleverly by specifying an off-the-shelf palette of weatherproofing membranes behind perforated aluminum panels that reveal the hues in constantly varying degrees. The three-dimensionally sculptural character of this "puzzle piece" building—with lateral notches staggered along the end elevations—also contributes to its self-transforming qualities.

In its long, narrow, shiplike proportions, colorful window jambs, board-formed concrete interior walls, integration of decks or terraces, and even in its approach to program, Simmons Hall is a distant cousin of Le Corbusier's Unité d'Habitation. Like the Unité, Holl's dorm aspires programmatically to offer "a slice of the city," combining living spaces with a range of communal functions—here responding to the call for gathering places (supplying the proverbial sponge to draw students in) with a night café; multipurpose performance space; dining hall; photo lab; and lounging, study, meditation, and exercise rooms. The night café, in particular a scarce



Sculptural lounge and study spaces (this spread) link multiple residential houses vertically, promoting student interaction. Internal stairs enhance spatial dynamism and increase opportunities for students to see and be seen (above). Skylights cap many of the lounges (below), and Holl skillfully integrated electric illumination to supplement daylight (right and opposite).





amenity at MIT, has been attracting students from all over campus.

Once beyond the entry threshold, marked by a 1950s-ish, whimsically hole-riddled canopy at the building's southeast corner, the porosity theme really takes off, both conceptually and more superficially. Finely perforated and fully Swiss-cheesed materials abound—as in the pale wood dorm-room furniture, designed by Holl—conveying either a delightfully playful sensibility or decorative enslavement to the permeability motif.

Taking the theme a bit deeper, the facade's amoeboid windows open onto irregular, cavelike lounges and group studies. Just as sponges have large channels amid finer-grained pores, Holl suggests, these sculptural insertions penetrate the more regular pattern of rectilinear rooms. Lined in crudely finished plaster and containing gestural stairways, the fluid and dynamic spaces connect multiple "residential houses" vertically within the dorm, promoting student interaction. A virtual Rorschach test, the typically skylit retreats—which the architects designed from inky sponge prints—have been compared to caverns, wombs, volcanoes, and wisps of smoke. Among the most interesting parts of the building, they offer an intimate scale, but may, as a result, be small for the number of students sharing them.

Holl had envisioned these lounges and studies opening up onto the corridors, which, though low-ceilinged, he made extra wide as potential congregating zones. Fire regulations, however, forced him to enclose the sculptural spaces, which still project, sometimes clumsily but elsewhere intriguingly, into the hallways and dorm rooms. He had also imagined student life flowing from the interior onto the terraces, but the university has tightly controlled access to high decks.

Even with three levels of window spanning floor to ceiling in each dorm room, the typical 2-foot-square aperture tends to feel confining rather than expansively permeable, giving the heavy grid what some students consider a slight jail-like quality. (Holl denies that MIT set constraints on fenestration sizes, but he intimates that the campus suicide history led to a stipulation preventing windows from opening more than 8 inches.)

A "porous building morphology" may be a lofty proposition, but, at its loosest, the drive for porosity led Holl to experiment literally with sponge prints, and it yielded some extraordinary spaces. MIT, under the guidance of president Chuck Vest and architecture and planning school dean William Mitchell, should also be credited with an open-minded, or "permeable," attitude in taking a risk on an unusual architectural exploration. Along the way, the design process remained exceptionally open to interchange with the student body, Holl reports. When, for example, he considered coloring the window jambs to identify different residential houses within the dorm, students balked, and he found a new strategy. The colors now form a giant structural diagram, expressing the relative stresses born by each member (red being the highest and blue the lowest). One sign of the building's success in engaging the students—other than the crowds gathering in the new communal spaces—is the ongoing argument about the accuracy of that color-coded diagram. Apparently, a few skeptical future engineers have been recalculating the stresses—but, of course, this is MIT. ■

Sources

Concrete: *Beton Bolduc; Aggregate Industries; S&F Concrete Corporation*

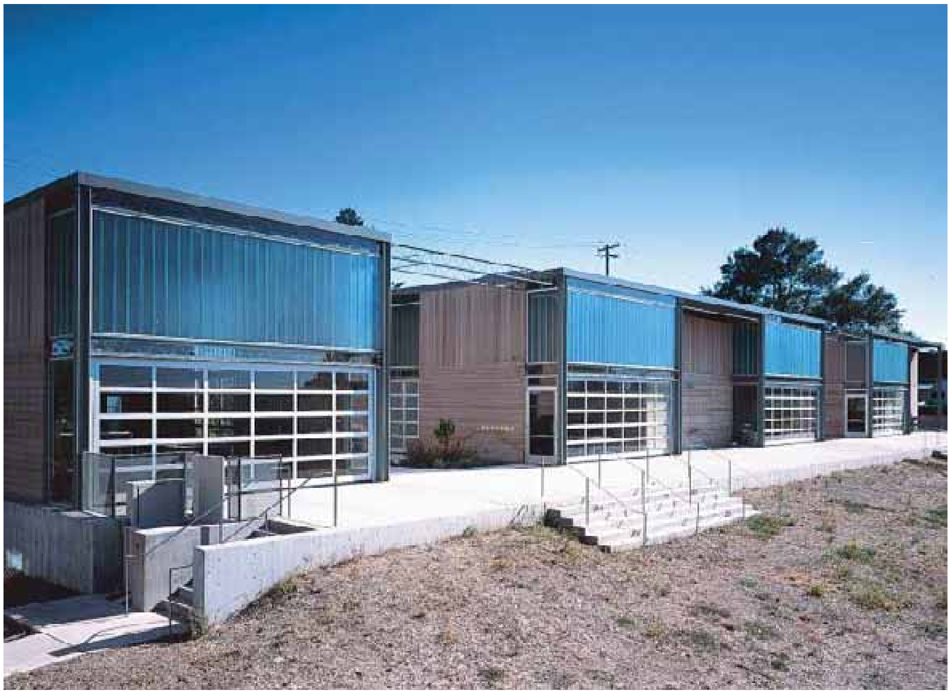
Windows: *Wausau (aluminum)*

WWW For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.

The studio buildings (below and opposite) sit atop a 5-foot-high podium that provides a continuous outdoor space for teaching but also raises the structures above flood waters. The 3-acre campus (above) reclaimed a neglected portion of the Napa River.

Stanley **Saitowitz** creates a small riverfront campus in Napa for the **OXBOW SCHOOL**, where art and design take center stage

By Clifford A. Pearson



PHOTOGRAPHY: © RICHARD BARNES, EXCEPT AS NOTED

Think "community" rather than "school" and you get a better idea of what Oxbow is all about. The brainchild of Ann Hatch, an important player in San Francisco's visual arts scene for the past two decades, Oxbow offers a one-semester program for high school juniors interested in drawing, painting, sculpture, photography, new media, and printmaking. Students from around the country come to the appealingly scruffy town of Napa, California, for a 16-week session, and all of them (including those from the local area) live on a 3-acre campus facing the oxbow—or bend—of the Napa River. Stanley Saitowitz, who had worked with Hatch on two previous projects (a house renovation and a space for her Capp Street Gallery), understood what she wanted here and designed a set of buildings that embody the school's ethos of collaboration and creativity.

While most people think of Napa as a land of wealthy winegrowers and San Franciscans rich enough to have second homes in the lovely rolling hills, the town—rather than the county—is actually quite working class and remains a bastion of 1960s-era wariness toward big money. So when Hatch and her main benefactor, the wealthy wine maker Robert Mondavi, quietly acquired a series of contiguous properties on the Napa River and said they wanted to build a school, the town was anything but welcoming.

At that time—the late 1990s—Mondavi had begun planning Copia, a center for wine, food, and the arts to be built in Napa. Hatch originally thought Oxbow could be part of that project, but Mondavi suggested that it be a separate entity. Building the school directly across the narrow river, though, let Hatch and her faculty make use of the auditorium and other facilities at Copia (designed by Polshek Partnership Architects) when it opened in 2002.

Design of the school began as a project for an undergraduate studio that Saitowitz was teaching at the University of California, Berkeley. Hatch and Mondavi acted as clients for the hypothetical project, and the students' designs were presented in a public forum in Napa. "It was a good warm-up exercise and helped us with the programming," says Saitowitz. But the town misinterpreted the student designs as the real thing and became alarmed. Eventually, Saitowitz brought the project into his office and the true design process began. But his design had to overcome the town's initial resistance.

The site for the school came burdened with problems. A recent flood had reminded people that the 15 properties earmarked for Oxbow sat in a flood plain, which made purchasing the land less expensive but building on it more difficult. A derelict warehouse and aging Victorian houses on the properties presented the challenge of either renovating the old buildings or convincing the town to let the school tear them down.

Project: *The Oxbow School, Napa, California*

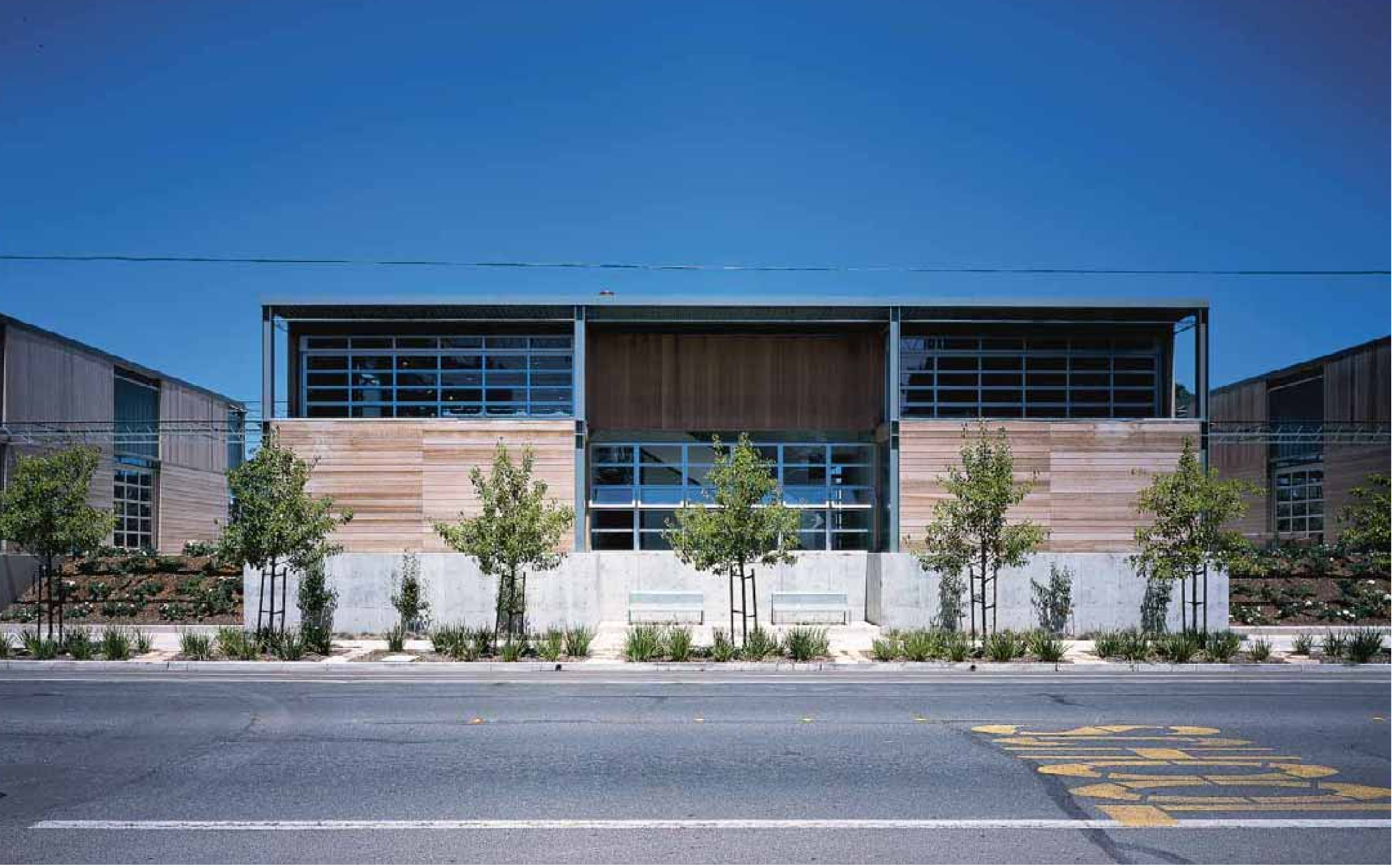
Client: *The Oxbow School—Ann Hatch, president; Margrit Biever Mondavi, vice president; Robert Mondavi, trustee*

Designer: *Stanley Saitowitz Office/Natoma Architects—Stanley Saitowitz, design principal; John Winder, project architect; Steve Schneeman, Sean Murphy, Edward Kim, project team*

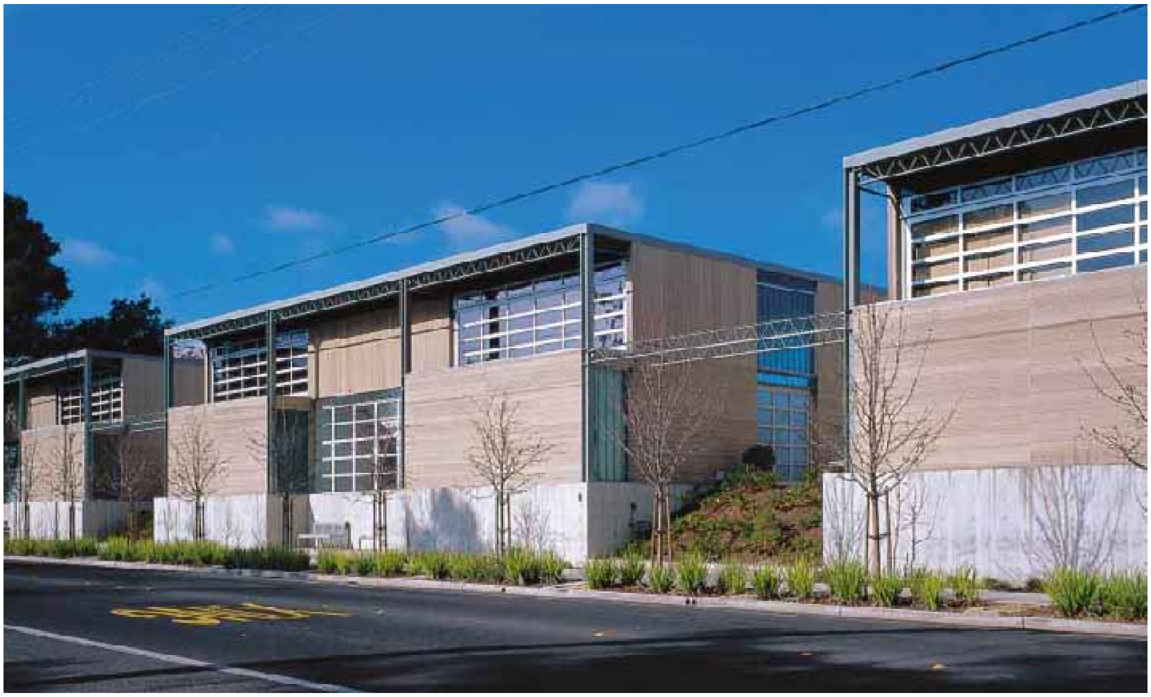
Engineers: *Santos and Urrutia (structural); Reicher Spence and Associates (civil)*

Consultants: *Tofer Delaney (landscape); Dott Electrical (lighting)*

General contractor: *The Oliver Co.*



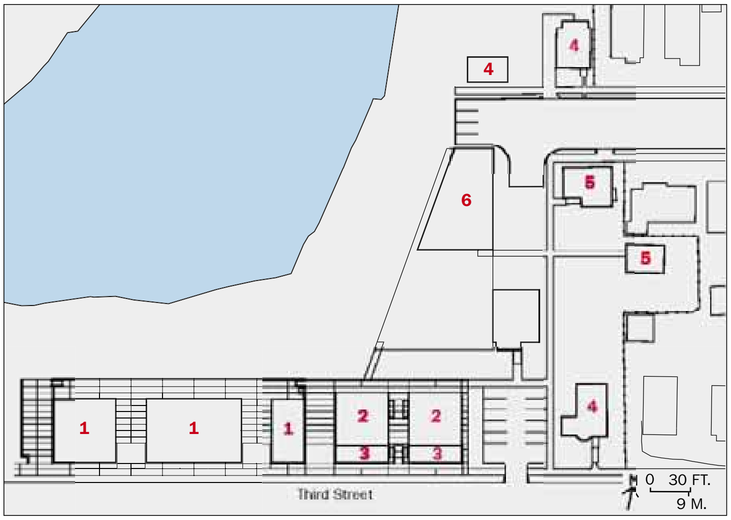
The new studio buildings (above and right) establish a formal but engaging street edge and provide spaces for street furniture, such as benches. Deep roof overhangs and limited fenestration on the lower portions of the buildings protect the south-facing elevations from the sun.



Although he had initially hoped to recycle the warehouse, Saitowitz determined in the end that it would be less expensive and more effective to raze it and build something new. His plan also called for moving one old house to a different part of the site, renovating a few others, and converting a pair of two-story apartment houses into student dorms. All of the buildings would be set on a 5-foot-high plinth, raising them above flood waters, and the new ones would employ a combination of cedar planking and translucent channel glass on the street front and roll-up garage doors on the riverside.

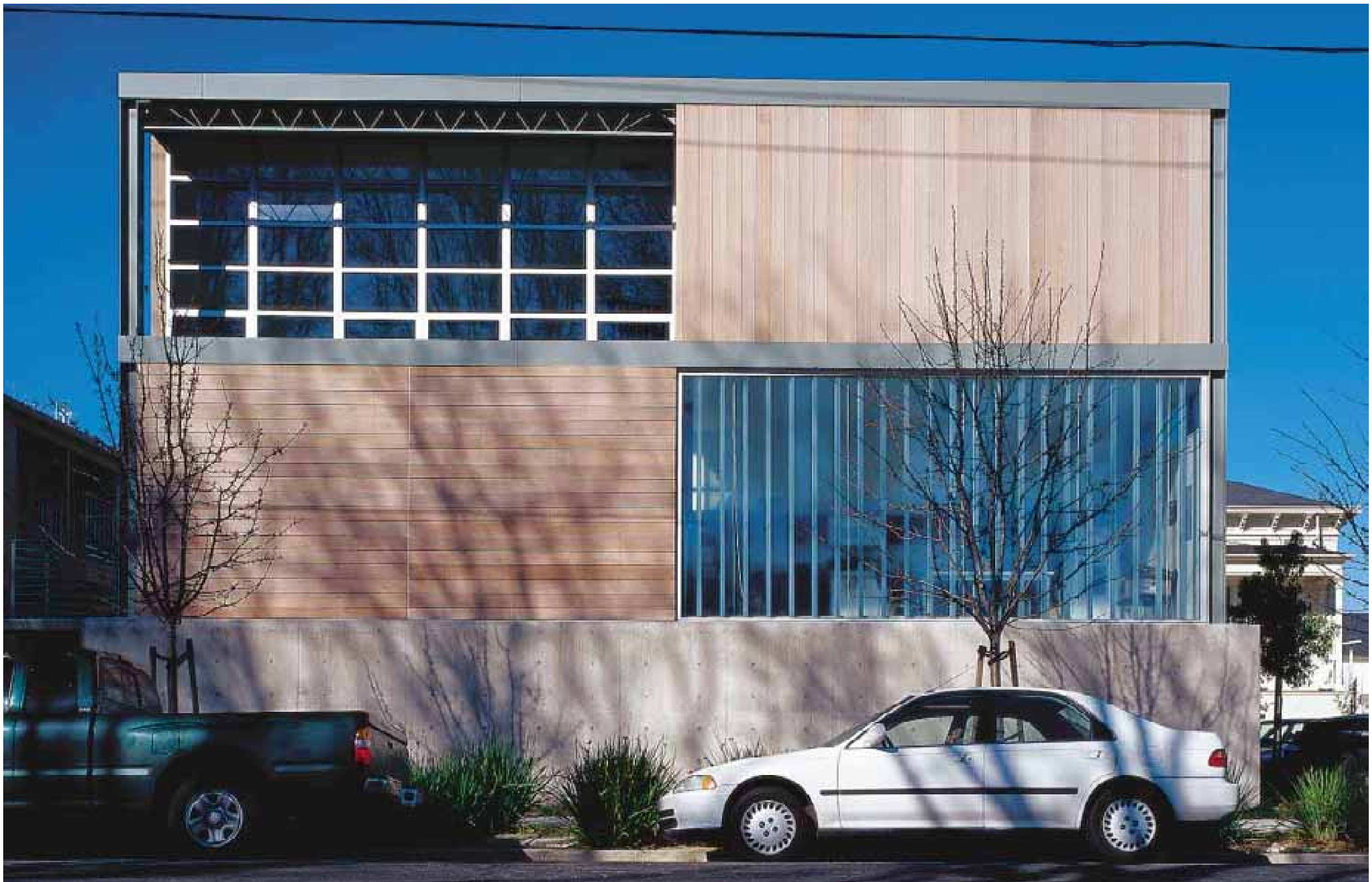
The town authorities had a preference for gingerbread architecture and a fear of anything modern, but Saitowitz's design eventually won them over. The new 20-foot-high studio buildings engaged the street with a visually appealing checkerboard of wood and glass, solid and void, while additions to the two dorm buildings created handsome elevations that reinforced this streetscape and provided needed space for small faculty houses. Facing the river, the studio buildings can open up almost completely, expanding teaching spaces onto a continuous outdoor terrace. Although the plan closed a small cross street that ran through the campus, it provided public access to the river and cleared tangled brush from the water's edge. For the first time in memory, this bend in the river became an attractive piece of the public realm, now strategically located in front of the much-visited Copia center.

Saitowitz designed the three studio buildings as simple, steel-frame structures made of 25-foot-wide modules and separated from each other by 25-foot-wide outdoor courts. Using two modules for one building, three for another, and one for the third, he created a visual rhythm that is expressed on the street side and a floor plan that responds to the spatial needs of the various studios. While most of the studios rise the full 20-foot height to the metal roof decking, a mezzanine cuts through one module, providing classroom space above and darkroom and rest rooms below. Saitowitz kept interior finishes as simple as the structure, specify-

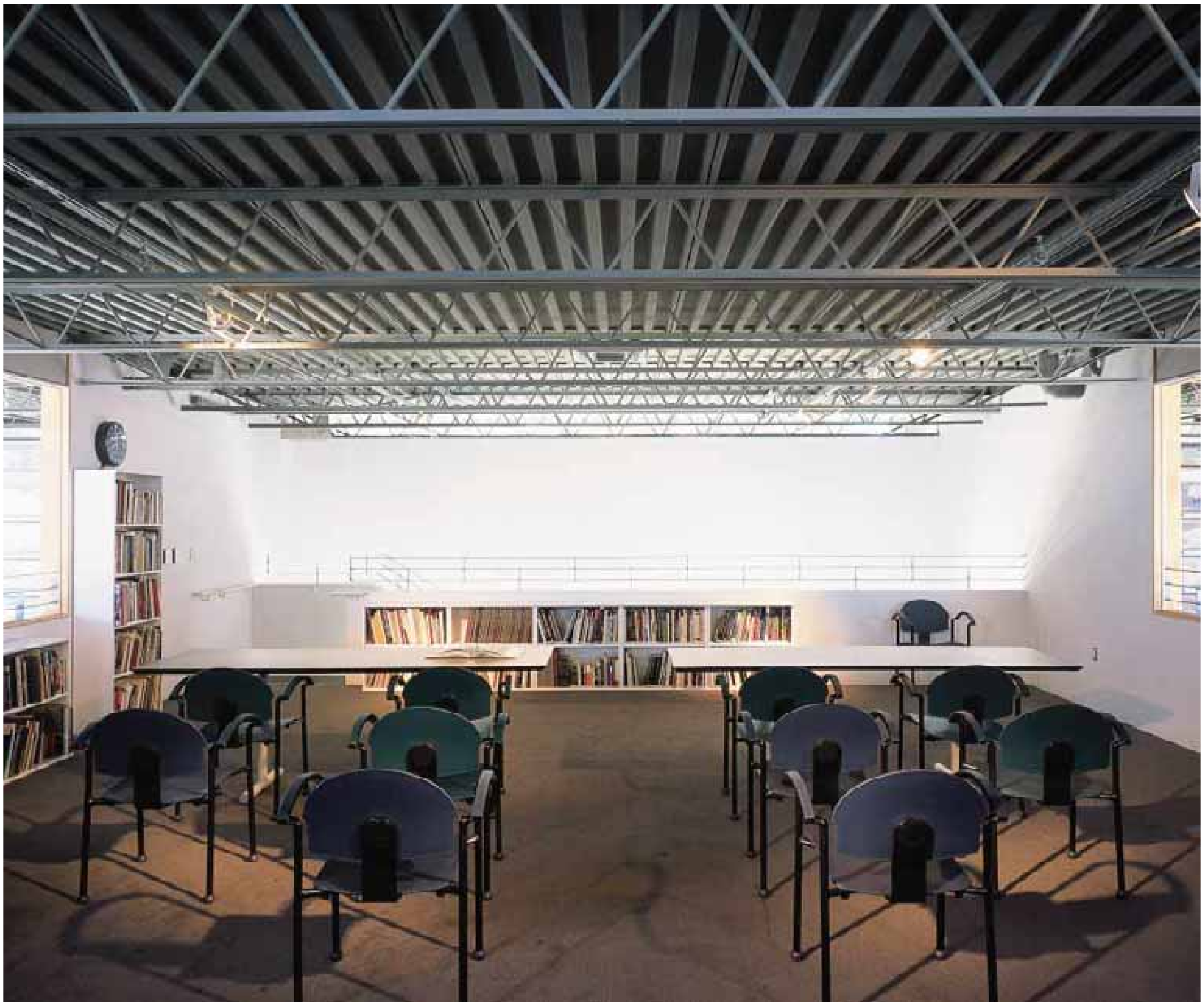


1. *Studio*
2. *Student dorm*
3. *Faculty house*
4. *Office*
5. *Work spaces*
6. *Multipurpose (future)*

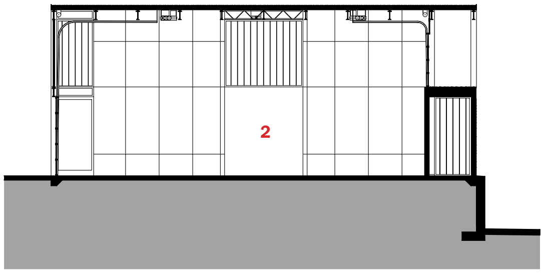
Saitowitz renovated two small apartment houses and added a new faculty house (below) to the street front of each one. He also converted several small Victorian houses (such as the one at right in photo below) into office space.



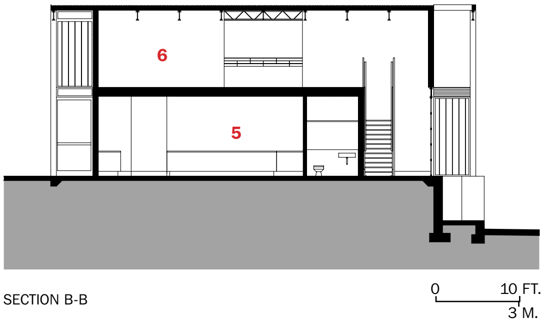
PHOTOGRAPHY: © TIM GRIFFITH (THIS PAGE AND OPPOSITE, BOTTOM)



The studio buildings face north and take advantage of river views with roll-up glass doors (opposite). While students spend most of their time in the 20-foot-high studio spaces, a more traditional classroom (left) sits on a mezzanine with a darkroom and rest rooms below. The school has 36 students now but can accommodate 48.

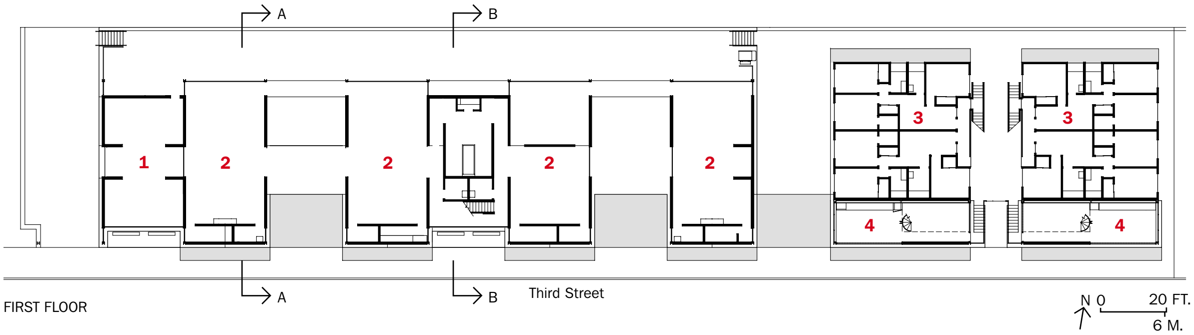


SECTION A-A



SECTION B-B

1. *Shop*
2. *Studio*
3. *Student dorm*
4. *Faculty house*
5. *Darkroom*
6. *Classroom*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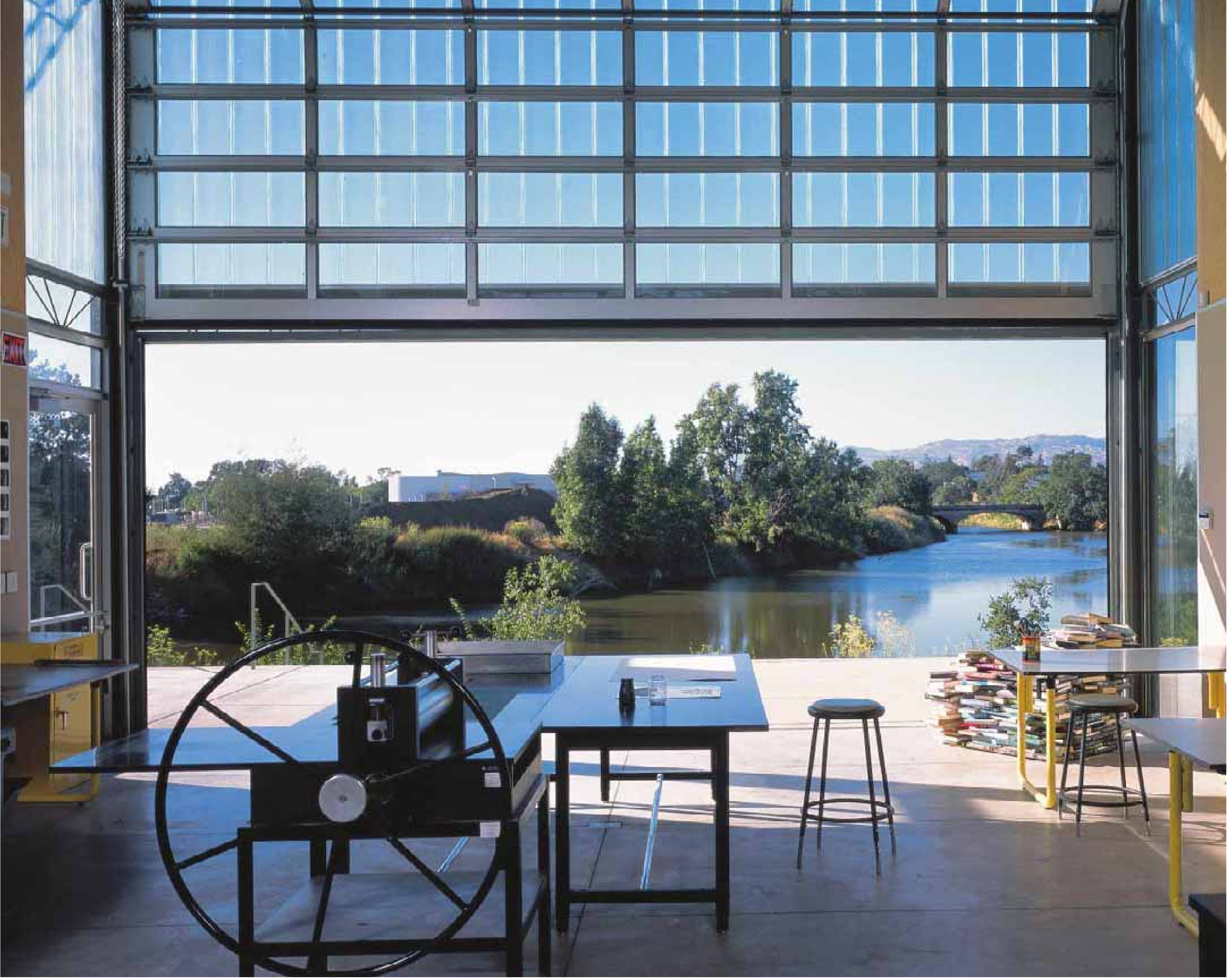
FIRST FLOOR



ing 4-by-8-foot sheets of plywood and Homosote panels screwed directly onto the metal framework. For the north-facing riverside, he designed elevations that are almost all glass, with much of their lower portions being commercially available roll-up garage doors. For the opposite facade, he created deep roof overhangs to provide shade and limited transparent glass to just the upper half.

"I wanted the teaching areas to be studios with air, light, and space," explains Hatch. "We weren't going to use the old art-room-in-the-basement approach here." Since the school is founded on the idea that the arts are important to our culture, Oxbow's architecture needed to be an essential part of its identity. "I pushed for the architecture to be out-front from the very beginning," states Hatch.

The strategy seems to be working. The studios' flexible space and their ability to open onto outdoor rooms and to each other creates an excellent environment for team teaching and collaborative learning, says Stephen Thomas, the school's director and head of its printmaking studio. And at night, "the buildings seem to float above the river," says Thomas. Saitowitz uses a similar image to explain the structures but looks at them from the inside out. "What I love about these buildings is that when you roll up the doors, the architecture disappears."

The large, empty spaces of the studios and the gaps between the small buildings turn out to be the spatial engines driving Saitowitz's ingeniously simple design. As is true with much Japanese architecture, the voids nourish the whole. ■

Sources

Steel joists: *Vulcraft*

Aluminum windows: *Fleetwood*

Storefront windows: *Arcadia*

Channel glass on studios: *Pilkington/Westcrowns (Profilit)*

Channel glass on faculty house: *Pilkington/Westcrowns (Linit)*

Upswinging doors: *Cookson Roll-Up Doors*

Wall covering: *Homosote*

Tiles: *Daltile*

Exterior lighting: *Hydrel; Bega*

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Located at the site of Oslo's former international airport, Telenor's new headquarters boasts spectacular views (above), and dramatic volumes (below).

In a joint venture, NBBJ, HUS, and PKA capture precious Nordic sunlight in a dramatic office environment for TELENOR'S WORLD HEADQUARTERS

By Peter MacKeith

When Oslo, Norway, resident Ragna Brekke arrives at her place of work each weekday morning, she enters into "the office of the future," a virtually paperless, highly mobile, literally transparent, intimate environment, notable for what it physically lacks as much as for its calm face-to-face activity: no rows of filing drawers, no stacks of manila folders or shelves of ring binders, no mail trolleys or archival boxes waiting for transport, no anonymous cloth-covered cubicle partitions or even a patterned open 'landscape' of workstations.

Instead, Ragna chooses one of the eight entrances punctuating the two curving glass facades that frame the arrival plaza of the new Telenor headquarters building in Fornebu, just west of the Oslo city center, overlooking the Oslofjord. She moves through a seven-story-high atrium and along glass corridors to her working area for the day's activities—a space large enough for 30 employees, arranged in groups of two to four—and places her coat and belongings in a wooden locker near the unit-area entrance. She sets her mobile phone and her notebook computer down on one of the available "floating" worktables, plugs them into the power and data ports, and accesses the company servers for her telephone logs, daily files, correspondence, and reference materials. Glass-enclosed conference rooms are nearby, within each unit area, for necessary meeting and private discussions, as is a kitchen for coffee and simple meal preparation. As she pauses in the day's activity, her screen saver displays a selection of family photographs and notes—the equivalent of the personal tackboard.

A senior business consultant with the Norwegian-based international telecommunications giant, Ragna is one of the nearly 6,000 employees the company consolidated from more than 30 Oslo area offices into an assembled workforce at Fornebu, all newly trained in a unique (indeed, patented) way of working at Telenor: untethered to a specific desk in a specific office; reliant upon digital, wireless, and cellular technology; and emphatically humane. Not surprisingly, perhaps, in this open, flexible workplace, with its atmosphere of informality and egalitarianism, Telenor's C.E.O., Jon Fredrik Baksaas, also occupies a similar worktable in the headquarter's administrative unit, in close proximity to his administrative team, and face-to-face with his administrative assistant (albeit the top floor allows slightly better views of the spectacular surroundings!).

Peter MacKeith is the associate dean at the School of Architecture, Washington University in St. Louis. A permanent resident of Finland, he writes frequently on Nordic architecture.

Telenor management's specific ambition was for "the most innovative workplace in Scandinavia," one reflecting the social possibilities inherent in an open information-technology network: dynamism and fluidity, to be sure, but also a spirit of transparency, invitation, and diversity. The 148-year-old company, having evolved from one Norwegian telegraph line in 1855 to the world's largest operator of mobile satellite services, also foresaw the need for a new building to change and adapt as Telenor itself developed over time.

Telenor's consolidation effort toward such a headquarters simultaneously addressed its desire for a more singular, identifiable corporate location—and its aim to reduce both direct and indirect energy-consumption costs. Equally, the concurrent shift in workplace culture to the desired "office of the future" could also be accomplished more effectively and comprehensively during a transition to a new, collective building. Lastly, the acquisition of property at Fornebu—the site of Oslo's former international airport terminal and runways, now planned and developed as a mixed-use precinct for information-technology and residential uses—provided Telenor with a significant, centrally located site, spectacular in its natural setting and rich in metaphorical potential.

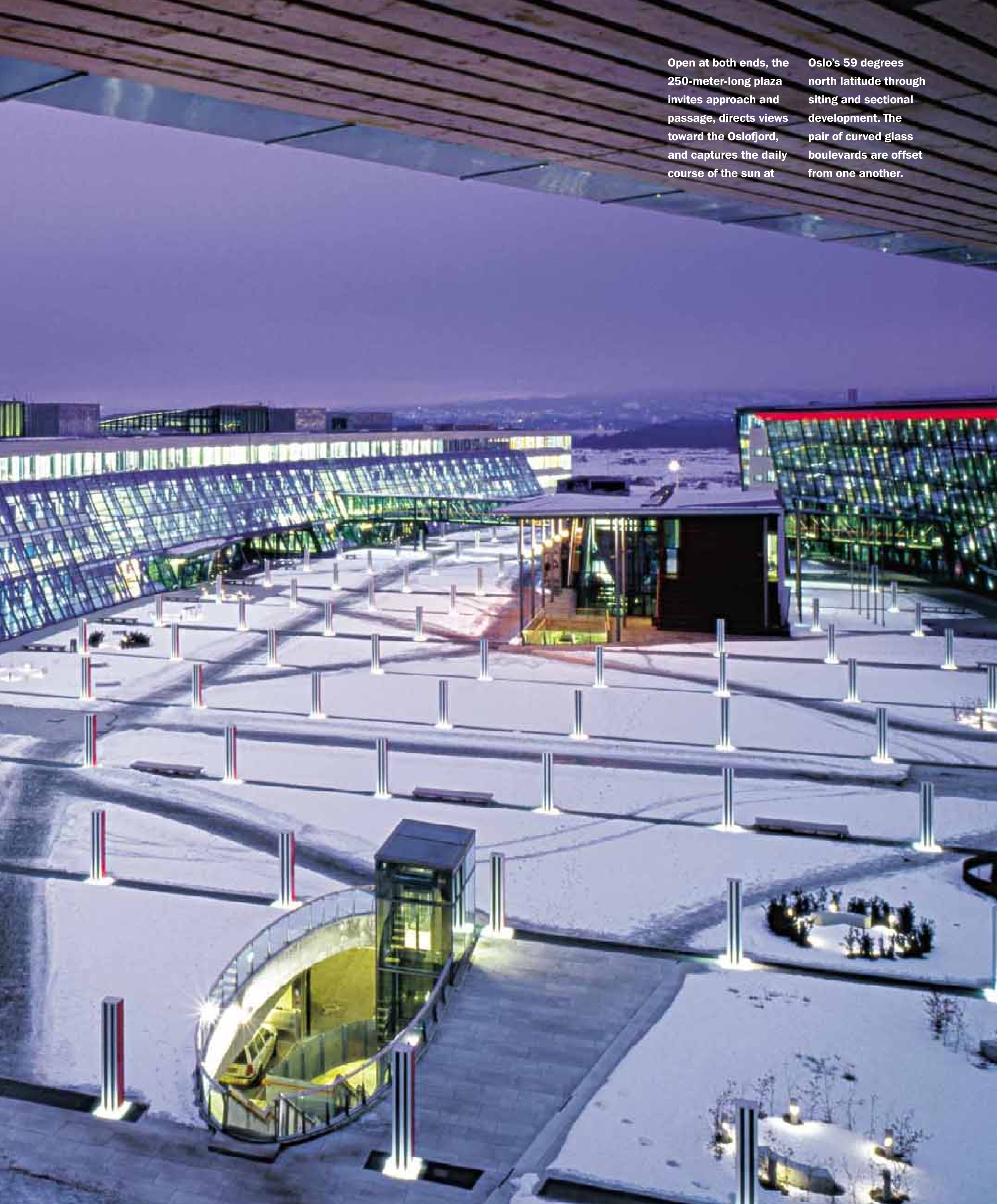
However, the architectural siting and shaping of the entirety of the 158,000-square-meter complex emerged from the winning entry to Telenor's 1998 design competition, authored by NBBJ Architects (USA), led by Peter Pran, design principal, and Scott Wyatt, partner in charge; and two Norwegian collaborators: HUS Architects, led by Bjorn Sorum, and PKA, led by partner Per Knutsen.

Project: *Telenor Headquarters, Fornebu, Oslo, Norway*

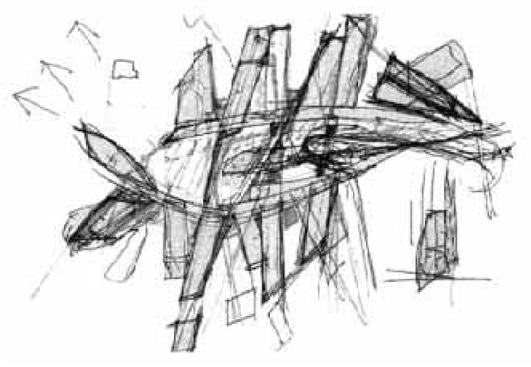
Architect: *Joint venture, NBBJ-HUS-PKA. Joint venture architectural board—Scott W. Wyatt, FAIA, NBBJ, partner/board chairman; Tom Forsberg, HUS, principal/board member; Per Knudsen, PKA, partner/board member*

Architectural team leaders: *Peter Pran, design principal/design group leader; Jan Storing, responsible architect/lead planner; Jonathan Ward, design principal/team leader; Jin Ah Park, design principal/team leader; William J. Nichols, principal/project executive (inception to engineering); Thomas J. Morton, AIA, principal/project executive (engineering to completion); Erik Lind, architect/team leader/deputy project executive (construction); Bjorn C. Sorum, responsible architect/project architect; Annema Selstrom, Christian Sundby, architect/team leaders*

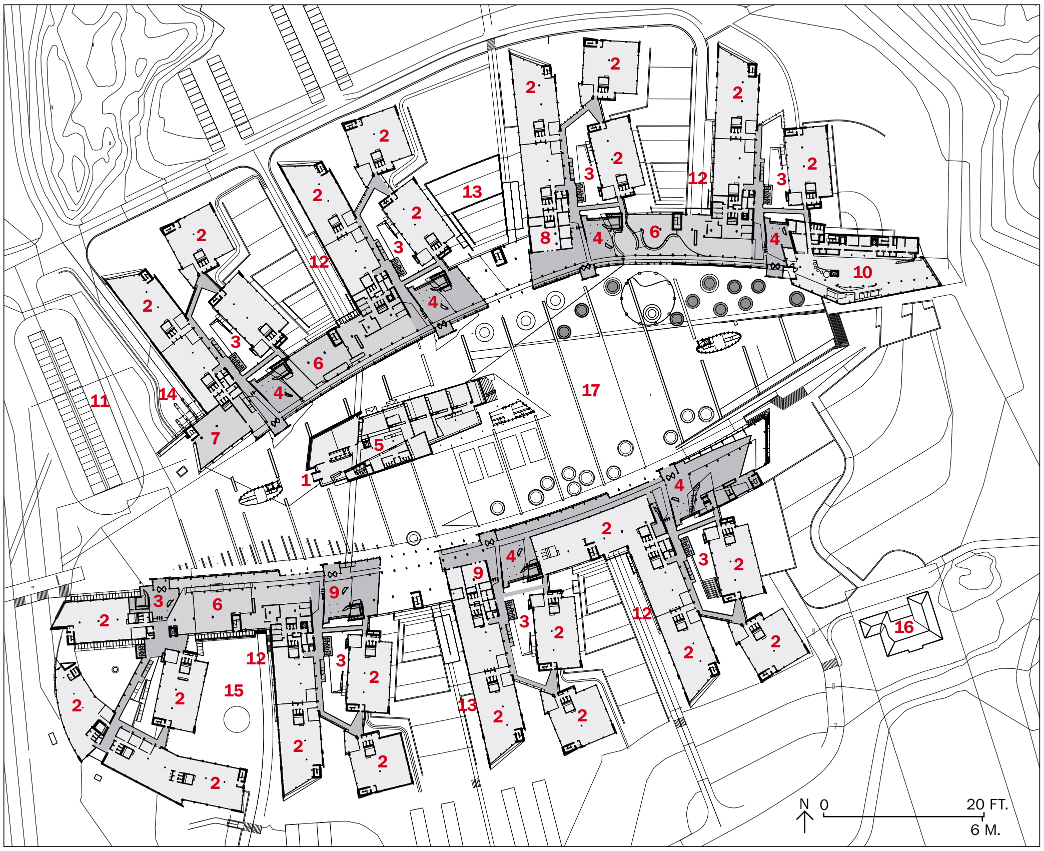
PHOTOGRAPHY: © TIM GRIFFITH

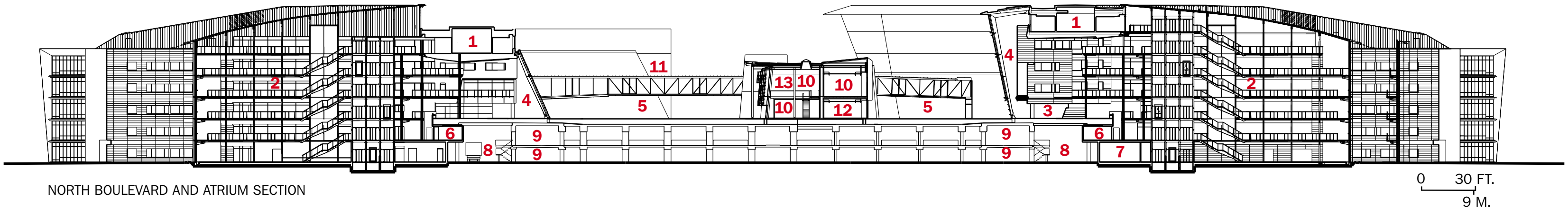


Open at both ends, the 250-meter-long plaza invites approach and passage, directs views toward the Oslofjord, and captures the daily course of the sun at Oslo's 59 degrees north latitude through siting and sectional development. The pair of curved glass boulevards are offset from one another.



1. *Main reception*
2. *Offices*
3. *Atrium*
4. *Reception*
5. *Learning center*
6. *Cafeteria*
7. *Fitness center*
8. *Telenor shop*
9. *Kiosk*
10. *Customer center*
11. *Visitor parking*
12. *Service road*
13. *Pedestrian/cycle path*
14. *In/out to under-plaza parking*
15. *Service yard*
16. *Villa Harelokken*
17. *Telenor Plaza*

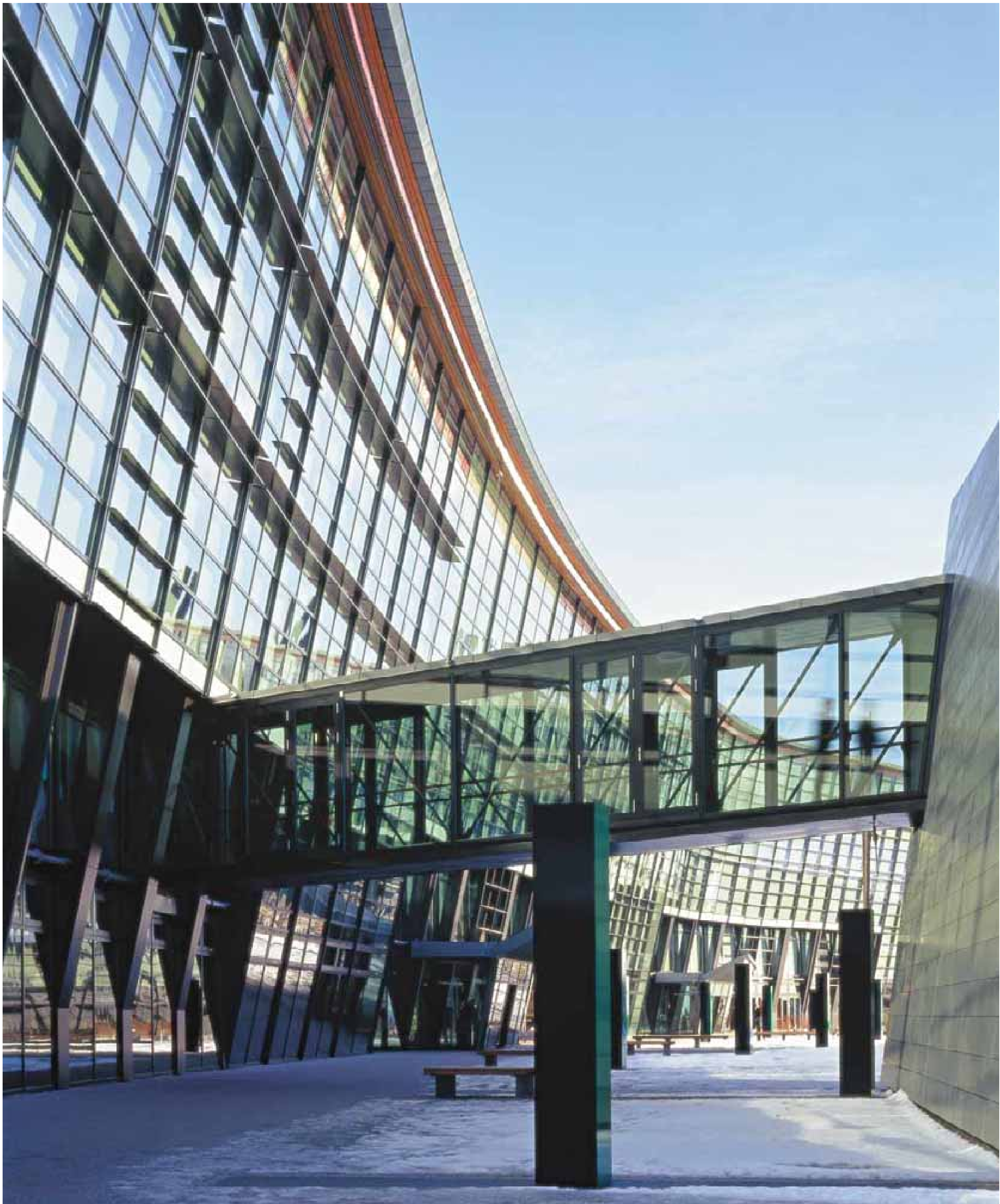




NORTH BOULEVARD AND ATRIUM SECTION

1. *Offices*
2. *Atrium*
3. *Reception*
4. *Boulevard*
5. *Plaza*
6. *Meeting room*
7. *Service*
8. *Service road*
9. *Parking*
10. *Learning center*
11. *Bridge connecting north and south*
12. *Classroom*
13. *Large seminar/ gathering space*

In a symbolic layering of technological history and artifacts, the treelike configuration of plaza (opposite), boulevards (right and opposite), and branching workplace units (site plan, opposite) has been laid over and aligned with the northwest–southeast orientation of the former airport main runway in two offset sequences. Each boulevard is interrupted at ground level by an open pass-through that gives local residents pedestrian access through the complex.



For Pran, the Telenor project is "a new symbol of technology and culture." Working with architects Jonathan Ward and Jin Ah Park—ultimately the senior designers for Telenor—Pran has been part of an effort at NBBJ that over the past five years has produced a new generation of 'firm-defining buildings,' as partner Wyatt calls them: These include the Reebok World Headquarters in Boston (2001), for instance, and now Telenor. Strategically, the project represents NBBJ's first significant foray into Europe; more importantly, asserts Wyatt, the Telenor commission signifies another level of ambition in corporate design: "This is well beyond a brand statement for Telenor—this is a building that seeks to encourage more creative thought and more effective decisions."

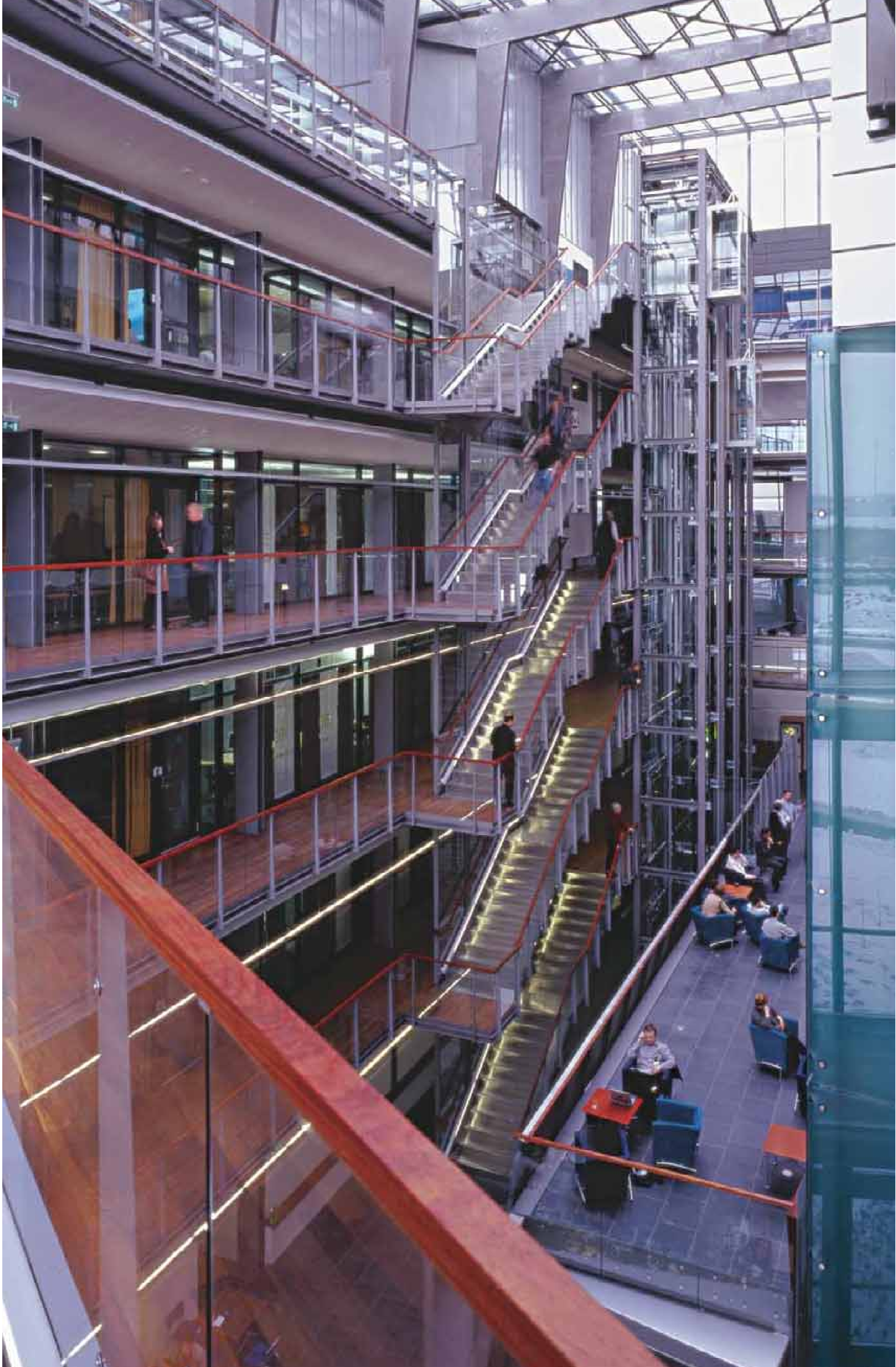
Although in dramatic siting and sheer volume, the Telenor design commands attention—the headquarters is the largest of any Scandinavian company's—NBBJ-HUS-PKA's design aimed for an understated identification of the corporation, attempting to resist monumentality through a recognition of the evident, sublime presence of the fjord, the historical traces of the airport, and a progressive diminution of forms into successively more intimate scales. As well, the daily occupation of the building by some 6,000 people suggested the possibility of a temporary urbanity, with the consequent needs for outdoor and indoor, large and small public spaces in counterpoint to the stated program of 200 30-person-unit workplaces, with their emphasis on mobility and intimacy.

To respond to these multiple goals, as senior designer Jonathan Ward describes the design process, the design team used "a simple tree metaphor." In a symbolic layering of technological history and artifacts, the treelike combination of plaza, boulevards, and branching workplace units have been overlaid on and aligned with the northwest–southeast orientation of the now-obscured Fornebu main runway in two offset sequences. Open at both ends, the 250-meter-long plaza invites approach and passage, directs views toward the Oslofjord, and captures the daily passage of the sun at Oslo's 59 degrees north latitude through siting and sectional development. The pair of curved glass boulevards are offset from one another: the northern volume has the height advantage and tilts dynamically into the courtyard. The length of its cornice is defined by an ambitiously scaled Jenny Holzer installation, an unending streamer of red LED phrases. Two stories shorter, the southern boulevard's glazing inclines away from the plaza, allowing for a more complete sweep of the sun. Each boulevard is interrupted at ground level for an open pass-through, making it possible for local residents to walk through the complex.

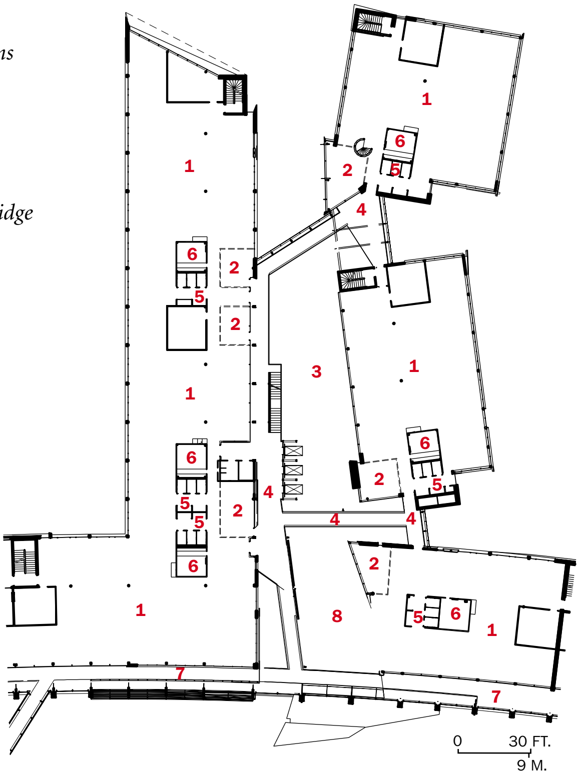
The plaza coordinates all arrivals, whether coming by automobile, public transportation (currently city bus service, but a light-rail station is already planned), or on foot from adjacent residential areas. Telenor decided early on to limit the amount of parking spaces to 1,700 and created a rotating system of employee parking passes; the design places 1,500 spaces into a two-level structure directly beneath the plaza. Anyone arriving by car ascends by stair or elevator to the open-air court.

The artificial plateau of the plaza is occupied by the prismatic form of the education center, partially surfaced in glass panels designed by the Norwegian artist Jon Arne Mogstad. A grid of colored-concrete pylons strides rhythmically across the landscape—artist Daniel Buren's

Federal law in Norway requires that workers must be no farther than 9 meters (29.5 feet) from a window, and a worker situated farther than that distance may only work 5 hours a day. Thus, the designers created Telenor as a series of thin, glass-and-travertine-sheathed volumes, demonstrated in the seven-story-high glass atria found in each of the curving glazed boulevards (this spread).

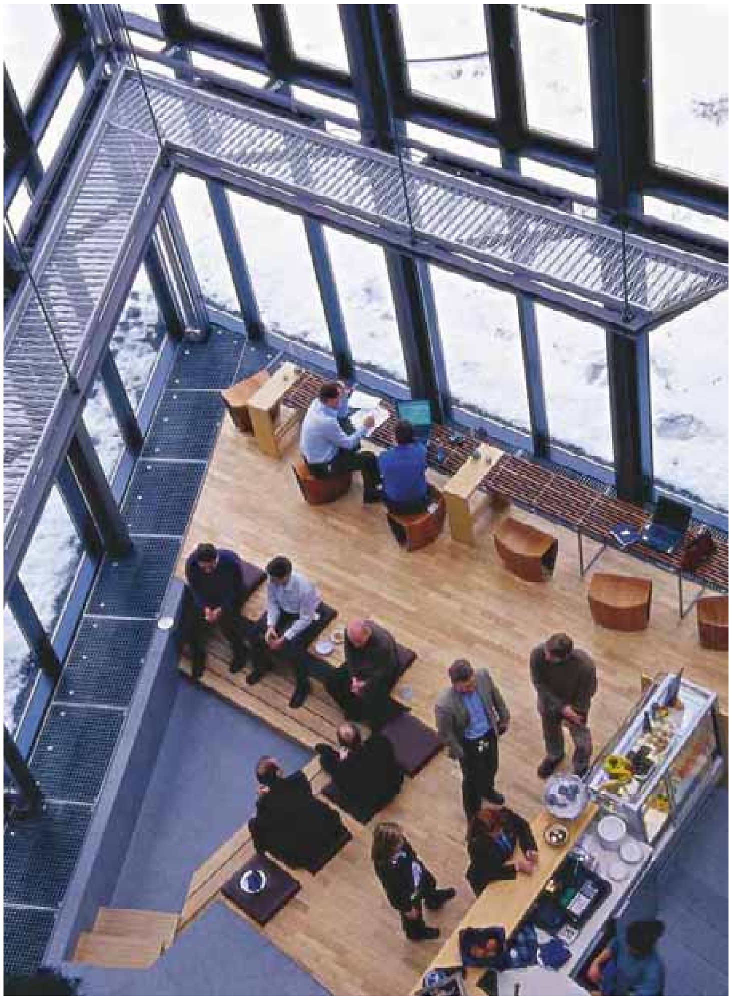


1. *Offices*
2. *Meeting rooms*
3. *Atrium*
4. *Bridges*
5. *Bathroom*
6. *Service shaft*
7. *Boulevard bridge*
8. *Reception*



TYPICAL OFFICE AND ATRIUM PLAN

A glowing reception desk welcomes workers and visitors into one of the eight entrance atria (above). Interspersed throughout the entrance atria (below and opposite, top) are a number of cafés and cafeterias. These spaces have been shaped for sectional views through the interior and out into the landscape (below right), and each cafeteria is distinguished by a commissioned artwork.



appropriation and extension into civic presence of the parking structure's columnar supports. Areas for sitting, walking, and gathering are differentiated by textures and patterns of granite paving.

Interspersed throughout the boulevards' eight entrance atria are a number of cafeterias, cafés, kiosks, and other shops, all programmed with an eye to round-the-clock convenience and choice. These major spaces have been shaped for sectional views through the interior and out into the landscape, and each cafeteria is distinguished by a commissioned artwork.

As visitors and employees alike filter through the sequence of public spaces toward the branching office 'villages,' a scalar shift occurs: from the iconic 'gateway' of the international corporation—the arrivals plaza—to the ever more intimate (and arguably, more Norwegian) settings of social gathering and, ultimately, to the localized small-group atmosphere of the working areas. These shifts, however, are controlled and held in proportional relationship throughout the movement by a basic dimensional module of 2.4 meters (approximately 7.9 feet), used in divisions or multiples in all planning. Combined with the natural illumination requirements of the Norwegian building code, Telenor is essentially a series of thin, glass-and-travertine-sheathed volumes, in which the corporate ambition for openness and transparency in workplace activity is met literally by the materiality, illumination, and flexibility of the design and construction.

The collaboration among the Norwegian architectural and engineering partners, the Telenor administrative team, technical consultants, and a refined selection of renowned artists, was significantly broader and more complicated than that of a more conventional commission inside the U.S. "We made the collaboration intentionally messy," says partner in charge Scott Wyatt, "and it was difficult—but only because people cared as much as they did." In the end, through the collaboration, the development of Telenor as "Nordic architecture," or even "Norwegian architecture," was overtaken by more precise and focused attention to the physical specifics of the site, the innovative ambitions and egalitarian character of the client, and the combined talents and resources of the collaborators—arriving by way of this panoramic perspective at a project collectively better than that which would have been produced by more discrete, individualistic means.

For Peter Pran, the Telenor project represents specific and profound questions of identity, architecture, and representation: "On the one hand, the most important issue is what our work does for Telenor—yes, providing a new identification for the company, and inspiring their employees—but there is still then the Norwegian physical and cultural context. We've sought to make a building that belongs to the site and reflects the society within which the corporation sits, but also one that is transformative of all three. We believe architecture can do this." ■

Sources

Glass: *Arbeidsfelleskapet BFP (facades and roofs)*

Concrete/steel: *Spenncon (prefab)*

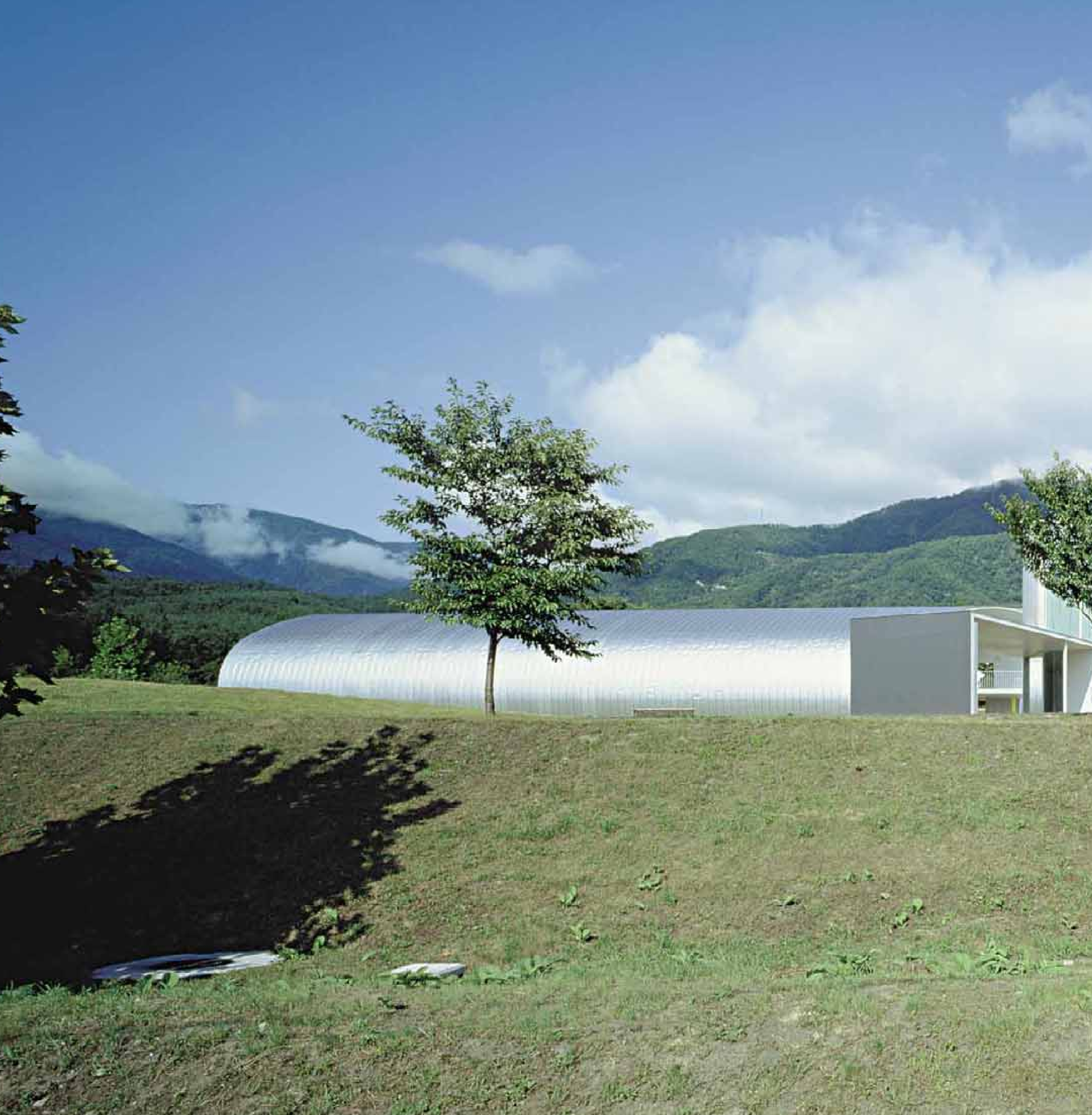
Doors: *Skauan (admission gates and revolving); Robust Staldorer (metal); SSC Joinex (wood)*

Locksets: *TrioVing*

Elevators: *Reber Schindler Heis*

WWW For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.

Fumihiko **Maki's** complex of discrete buildings called **TRIAD,** in Nagano, Japan, cohere through form, material, and site design



By Naomi Pollock

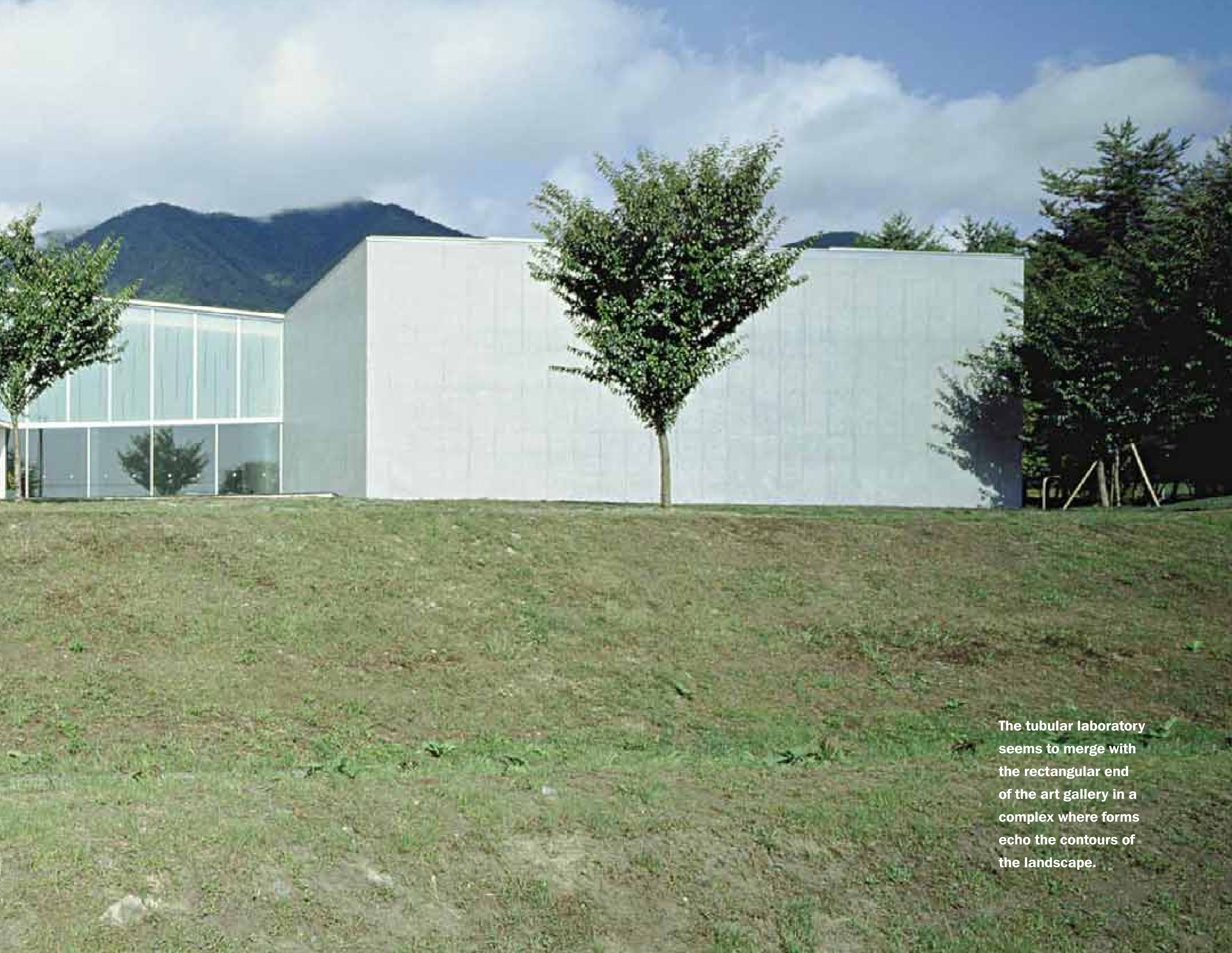
It is often said that architects revisit the same themes throughout their careers. In the late 1950s, Fumihiko Maki began his study of collective form—groups of buildings that cohere into an urban whole—while he was a Graham Foundation Fellow traveling in Southeast Asia and the Middle East. Seen as an alternative to the then-popular megastructure, this concept became a focus of the Tokyo-based architect's practice, launched nearly 40 years ago. During that time, Maki has designed a vast range of projects across multiple continents.

One of Maki's latest explorations is Triad, a laboratory, gallery, and guardhouse for Harmonic Drive Systems, the manufacturer of precision decelerators and other instruments used in satellites, spacecraft, and telescopes. Though modest in size compared to the convention centers and campus complexes that have become Maki's bread and butter, Triad is rich in ideas accrued over years of contemplating collective form.

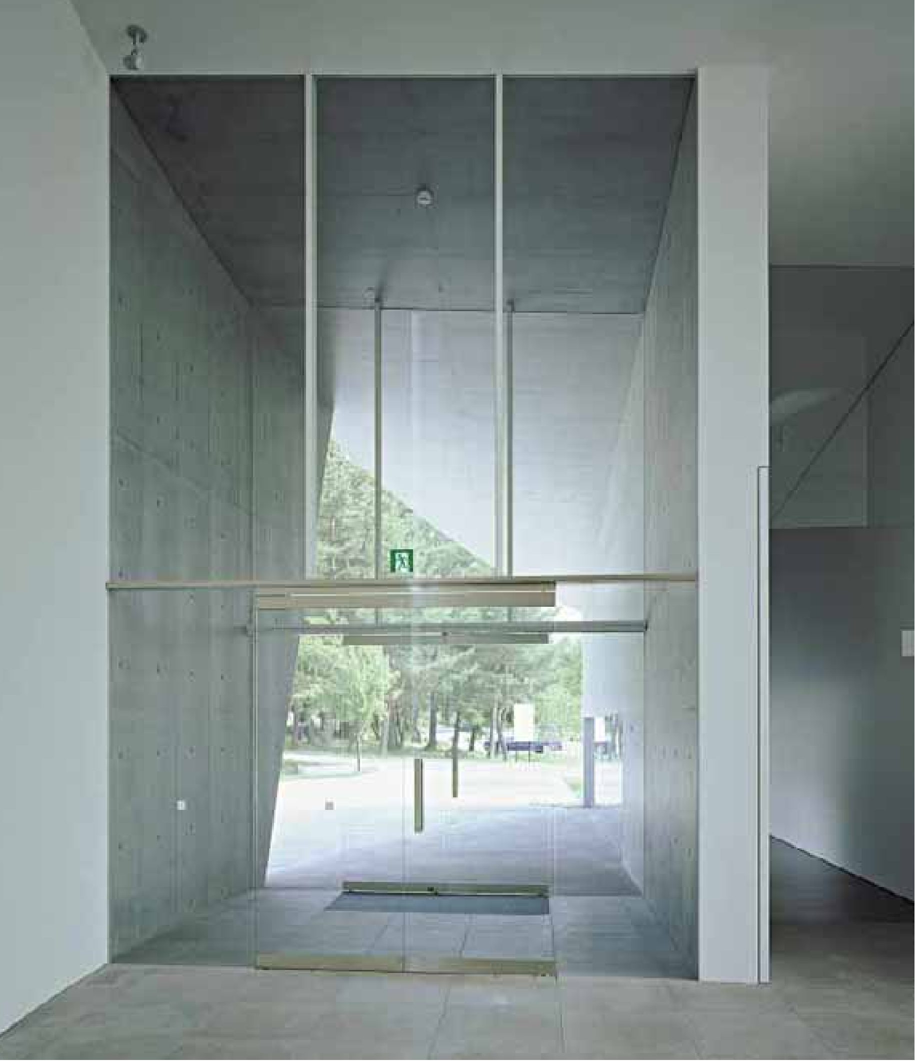
The project began when the company owner asked Maki to design a small, semipublic gallery for his private collection of paintings and other works by the Japanese artist Yoshikuni Iida as part of the company's campus. During the project's planning stages, it became apparent that Harmonic Drive Systems, headquartered in a 12-year-old factory in Hodaka, a town of 30,000 located 3 hours north of Tokyo, also needed a state-of-the-art facility to test and develop new products. Then the client decided to build a guardhouse for the entire enclave. As a result of the program's accretive growth process, Maki was faced with the question of how to combine three small but functionally unrelated pieces on a single 768,296-square-foot property.

Even in Japan, where a perennial shortage of buildable land results in some unbelievable programmatic pairings, Maki concedes this was a "very unique combination." Though the architect toyed with connecting the disparate pieces, in the end he proposed three independent structures. The guardhouse, a 355-square-foot rectangular box perched atop a gentle slope, contains a control room in front and a tatami-floored lounge in the back.

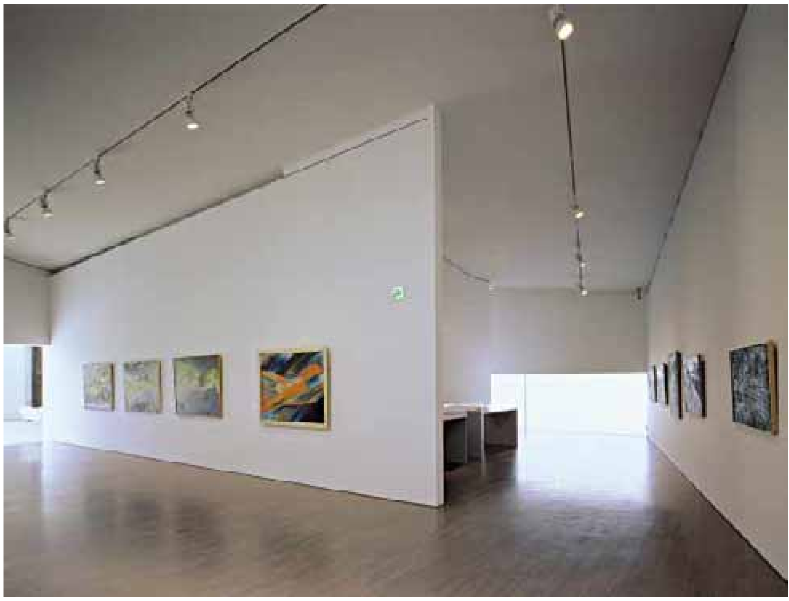
Encased in a curved steel skin, the 7,664-square-foot laboratory for experimental research in precision instruments includes a fabrication area whose internal conditions had to be carefully controlled. Buffering this room from external noise and climatic fluctuations are the entrance and delivery room at one end, and a testing room and mechanical space at the other. The gallery, a pitch-roofed, 3,810-square-foot structure with

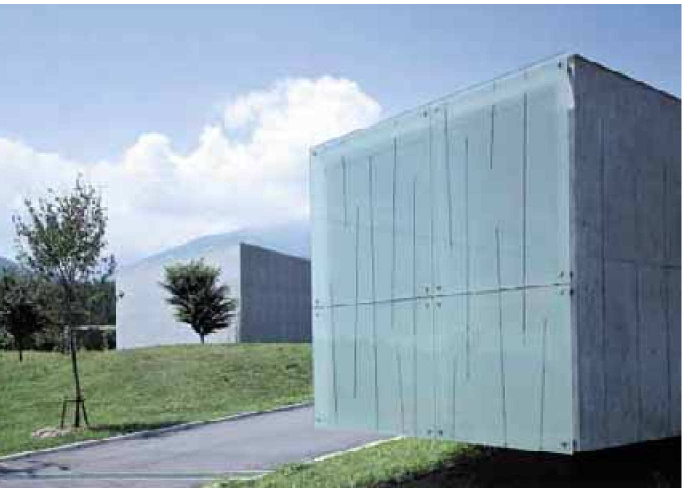


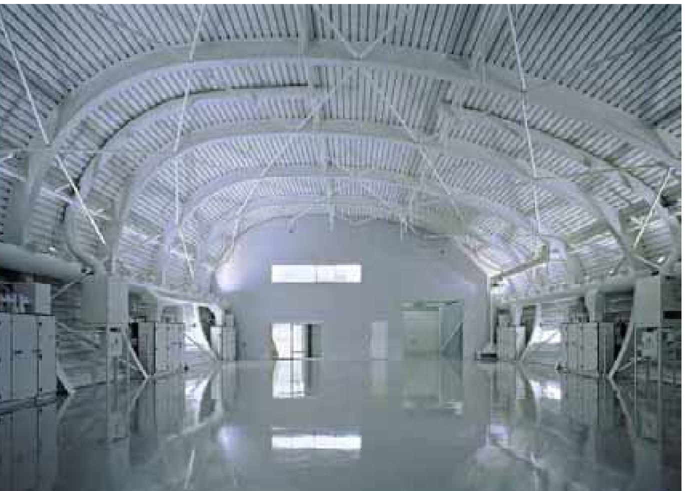
The tubular laboratory seems to merge with the rectangular end of the art gallery in a complex where forms echo the contours of the landscape.

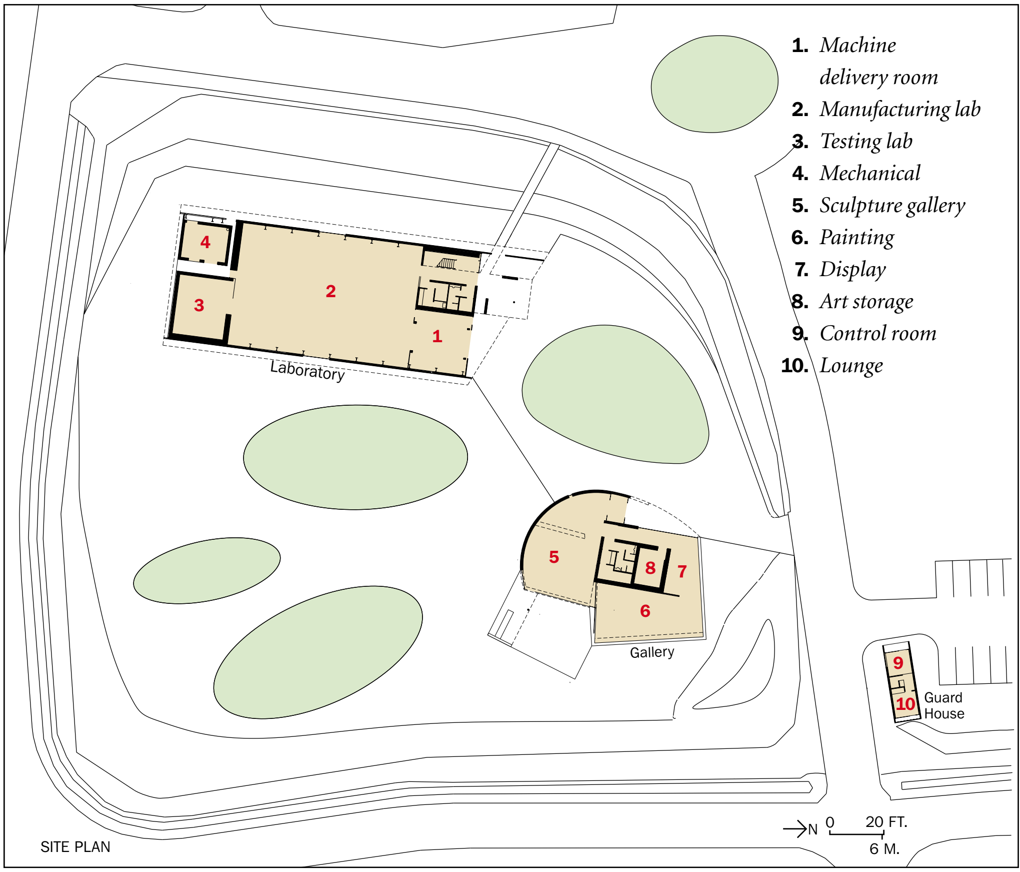


The tubular-shaped laboratory (opposite and bottom left) is enclosed in a thin skin of welded standing-seam steel sheets, with a steel honeycomb core and a thick concrete floor. The reinforced-concrete art gallery is marked by a large glazed portal (left) leading to simple exhibition spaces (below). The end wall of the reinforced-concrete guardhouse (middle left) is frosted glass.









1. Machine delivery room
2. Manufacturing lab
3. Testing lab
4. Mechanical
5. Sculpture gallery
6. Painting
7. Display
8. Art storage
9. Control room
10. Lounge
Laboratory
Gallery
Guard House
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3
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7
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20 FT.
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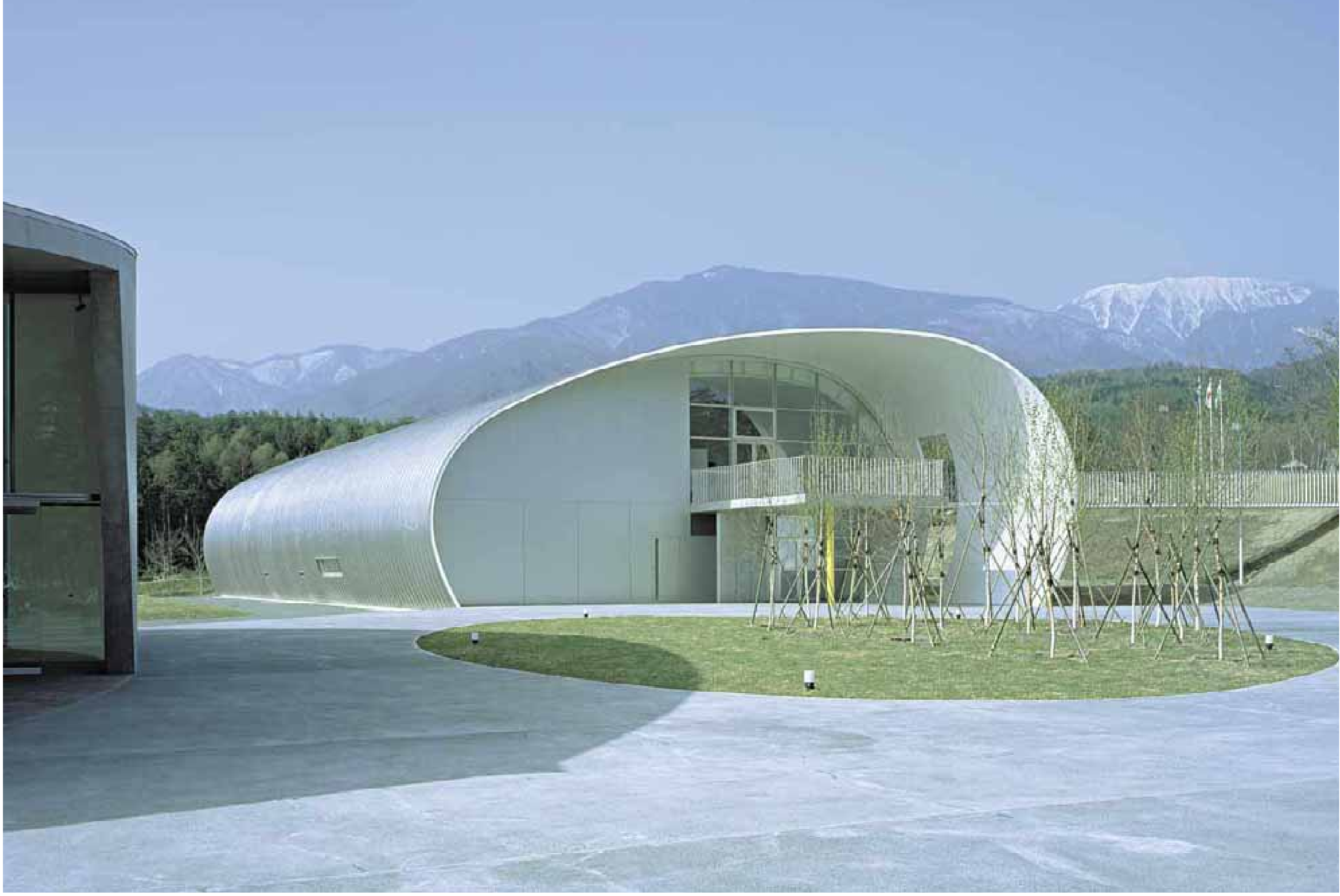
SITE PLAN



PHOTOGRAPHY: © TOSHIHARU KITAJIMA

a round corner, consists of three exhibition spaces: one for sculpture, which opens onto a terrace with spectacular views of both the town below and the Japan Alps in the distance; one for paintings; and one for other small works. Distinguished by their varying ceiling heights and indirect natural lighting, the three galleries spiral around a core containing art storage, rest rooms, and a machine room. As if blown apart by centrifugal force, each building is a freestanding element with its own distinct character. Instead of choosing iconographic architectural forms and materials, Maki specified those with an abstract, sculptural quality. While there is no overt framework, site conditions and client requirements determined each piece's position.

To monitor the comings and goings at the existing factory, the guardhouse had to be near the compound's entrance, separated from the lab and art gallery by the company's internal access road. And the lab had to be close to the factory; it is tethered to it by a pedestrian bridge. But it is Maki's subtle site intervention—a combination of perimeter berms and open space modulated by elliptical mounds made of grass-covered earth or Cor-ten steel plate—that cements the pieces in place. "The residual space between forms is just as important as the buildings themselves," Maki explains.

The three buildings are also bound together by formal and material connections. The lab's curved section, which facilitates the airflow required by the facility's highly sensitive machinery, is echoed in the gallery plan. In turn, the gallery's rectilinear display space relates to the guardhouse's overall boxy shape. In a similar vein, the lab's steel skin ties it to the gallery's tilted metallic roof, while the gallery's concrete and patterned glass walls connect it to the guardhouse, whose frosted-glass window faces the street.

Maki notes that while it would have been easy to use the same exterior materials on all three buildings, the contrasting textures and surfaces yielded a more interesting conversation between the pieces, as well as with their larger context. Sharp edges, whose precise execution politely nod to Harmonic Drive's sophisticated products, delineate the buildings and set them apart from the powerful natural setting. The gallery's walls, an all-in-one structure and enclosure, are 12 inches thick, while the lab's skin consists of 0.4-mm-thick steel sheets with a 4-mm-thick steel honeycomb in between. The steel shell, which supports the building, is composed of prefabricated pieces bolted together on-site and coated with fluorine to conceal the joints. The metal skin juts out beyond the body of the building to act as an entrance canopy, its diagonal slice revealing its remarkable thinness.

Because Maki used a similar system for the subarena roof of the Fujisawa Municipal Gymnasium (1984), he was familiar with steel-plate cladding; but in addition to technological know-how, it took careful craftsmanship and weekly site visits by Maki's staff to pull this off. While each of the three components of the complex is unique and merits attention, together they result in a totality that is a lot more than a simple sum of its parts. ■

Project: *TRIAD, Harmonic Drive Extension Complex, Nagano, Japan*
Owner: *Harmonic Drive Systems*
Architect: *Fumihiko Maki + Maki Associates—Fumihiko Maki, partner in charge; Iwao Shida, Kei Mizui, Masaaki Yoshizaki, Junpei Ito, design team*
Engineers: *Delta Structural Consultants (structural); Sogo Consultants (m/e/p)*
General contractor: *Noguchi*

Sources
Steel frame and sandwich panels (lab): *Hagiura Industrial*
Steel roof: *Sanko Metal Industrial*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.

Premier Cru Design

A NEW CROP OF WINERIES BY STAR ARCHITECTS SHOWS HOW THESE BUILDINGS CAN CAPTURE THE ROMANTIC ALLURE OF CULTIVATING GRAPES AND TRANSFORMING THEM INTO WINE.

By Clifford A. Pearson

The romance of the grape has driven people to many things—poetry, distraction, and now architecture. It engages the senses and the spirit, a combination that architects find irresistible. From its role in religious ritual to the hushed tones it elicits from oenophiles, wine emits an aura of mystery. Capturing that quality—in a bottle or a building—is what wine making is all about.

Not long ago, though, winery buildings were production or storage facilities, humble in design and sturdy in construction. They were places of fermentation, not innovation, and they didn't show up on the pages of architecture magazines. Today, wineries are tourist destinations whose buildings help establish particular identities in the minds of the wine-buying public.

Now that wineries cater to day-trippers and even overnight guests, they need to impress. Owners have called in big-name architects and asked them to create memorable buildings. The challenge facing these architects is to design facilities that work both as tourist attractions and factories. While showing off the wine-making process is part of the new mission of many wineries, keeping camera-toting visitors away from forklifts and grape-crushing equipment is part of the job, too.

The best of the new wineries glorify the conversion of grapes into wine and connect this process to the place where it happens. Having grown up just 50 miles from where the Bodegas Julián Chivite now stands, Rafael Moneo brought an intuitive understanding of the physical setting to his new winery. Not far away, Santiago Calatrava's Bodegas Ysios captures the rolling hills of the southern Basque region in its roofscape and provides just the right visual punch. A few years from now, the Moneo and Calatrava buildings will be joined by a Frank Gehry–designed hotel for the nearby Marques de Riscal winery. In Chile, José Cruz found an elegant way of expressing the step-by-step process of making wine at his Bodegas Perez Cruz. And in British Columbia, Olson Sundberg Kundig Allen Architects created a village of buildings that evokes the picturesque tradition of wine-making communities. ■

Construction of Gehry's hotel at Marques de Riscal should start this year.

1.

Laguardia, Spain

Santiago Calatrava integrated an undulating structure with the rugged landscape at the foot of the Sierra Cantabria in northern Spain.

2.

Westbank, British Columbia

Overlooking Lake Okanagan, Olson Sundberg Kundig Allen Architects created a hilltop village dedicated to making and enjoying wine.

3.

Paine, Chile

At the base of the Andes, José Cruz designed a building whose form expresses the sensual process of producing wine.

4.

Arínzano, Spain

Rafael Moneo framed a cluster of old structures with a modern building that matches the stony soil of Bodegas Julián Chivite.

www For additional winery projects, and more information on the people and products involved in the following projects, go to Building Type Study at ***architecturalrecord.com***.

PHOTOGRAPHY: © ROLAND HALBE, EXCEPT PAUL WARCHOL (SECOND FROM TOP); COURTESY GEHRY PARTNERS LLP (FAR RIGHT)

Bodegas Ysios

Laguardia, Spain

1

SANTIAGO CALATRAVA DESIGNS AN UNDULATING BUILDING WHOSE FORM AND MATERIALS HARMONIZE WITH THE MOUNTAINS AND EARTH.

By David Cohn

Architect: *Santiago Calatrava, S.A.—Santiago Calatrava, principal*
Client: *Bodegas Ysios*
Engineer: *Santiago Calatrava, S.A.*
General contractor: *Gerrovial Agroman*

Size: *86,000 square feet*
Cost: *$5 million*

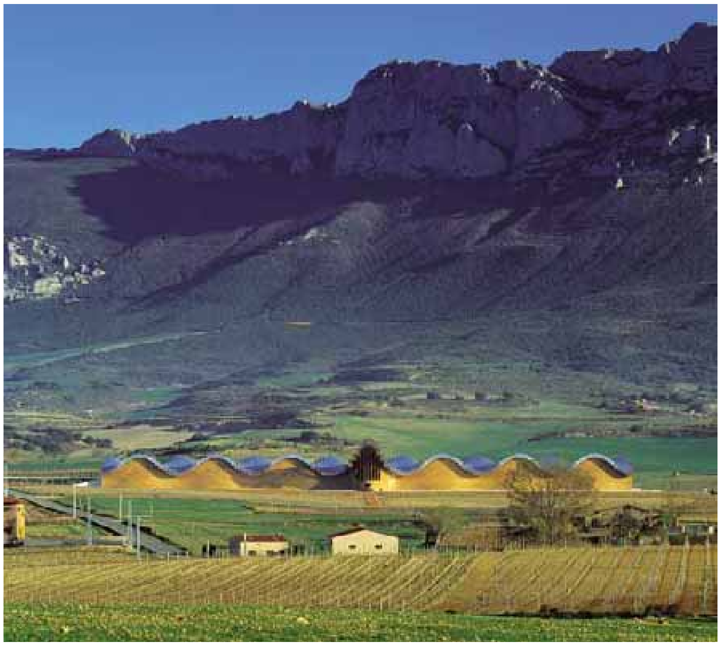
Sources
Structural wood: *Holtza*
Cedar cladding: *Javal*
Granite flooring: *Comarpi*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Wine is a growing business in Spain (no pun intended). With international consumers discovering the great variety of Spain's wines, companies are investing heavily in the sector, including the huge firm Bebidas y Bodegas, which owns 600 different labels. Its latest investment, the Ysios Winery, located just north of the classic wine-growing region of La Rioja in the province of Álava, enjoys growing conditions that promise to yield high-quality wines. To give a distinctive image to this new label, the company turned to Santiago Calatrava for the design of its building.

Program

The newly planted vineyards (160 acres of *tempranillo* grapes) lie at the foot of the Cantabrian Range, just north of the fortified medieval hill town of Laguardia, amid an open countryside with extensive views. The 86,000-square-foot winery building is visible from the passing highway and the town. Calatrava's building takes advantage of this spectacular site, drawing casual visitors as well as organized tours of wine enthusiasts. The facility has a capacity of 1.5 million bottles a year and is designed for possible future expansion.



Solution

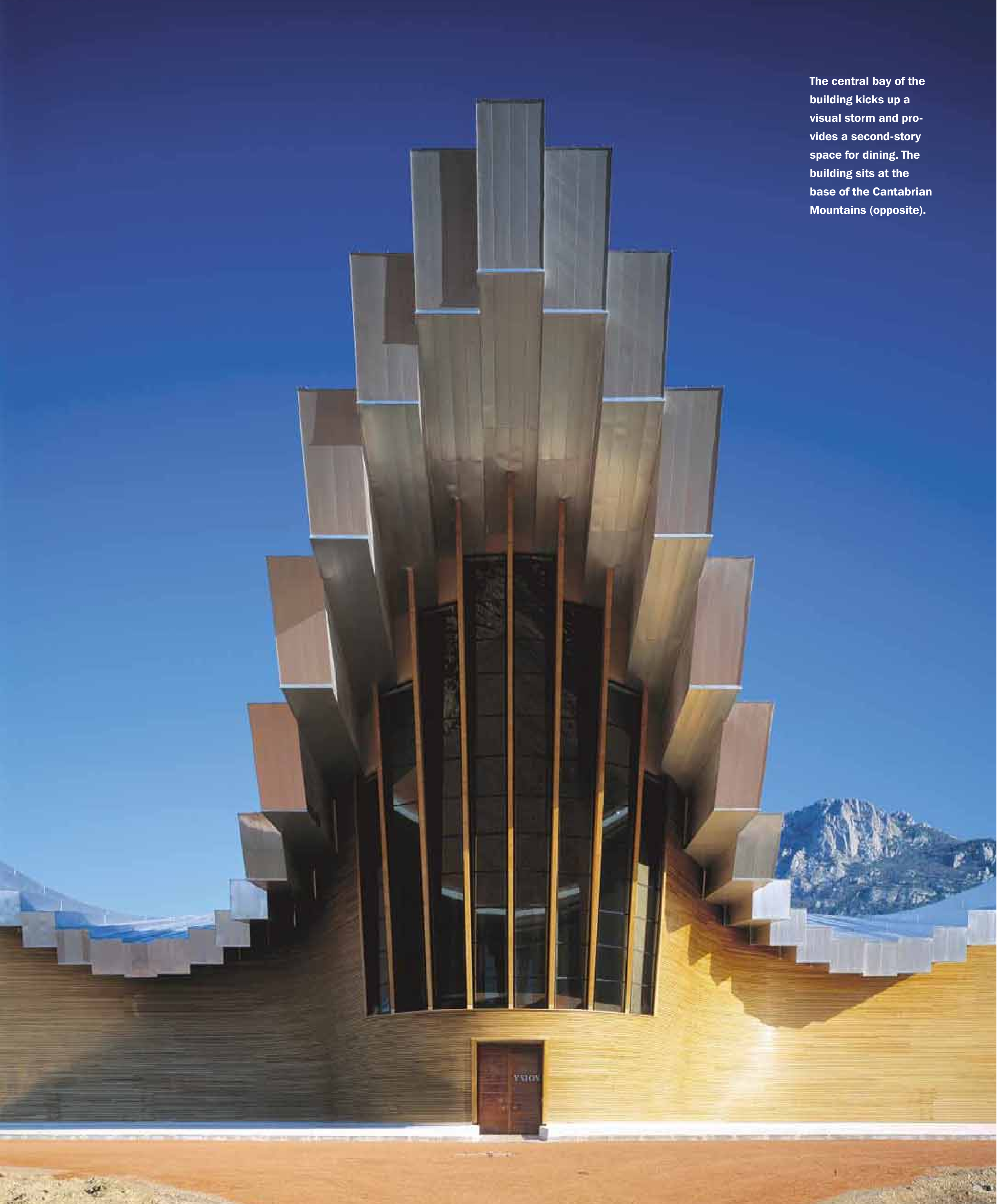
The architect faced the difficult task of making an industrial building a landmark with a limited budget of $6 million, or roughly $70 a square foot. Borrowing the terminology of Venturi, Scott Brown, and Izenour in their book *Learning from Las Vegas*, one might describe the task as making a roadside shed into a "duck," in the sense that its shape is derived more from a sense of showmanship than strictly functional concerns.

For the winery, Calatrava developed a repertoire of dynamic structural forms drawn from history, specifically a family of curves found in the thin-shell concrete vaults of Felix Candela and other engineers in the 1960s. Calatrava has explored many of these forms over the years in small-scale sculptural exercises, which he calls "research," then he uses them in architectural projects. One of his interests has been creating wavelike structures using straight construction elements.

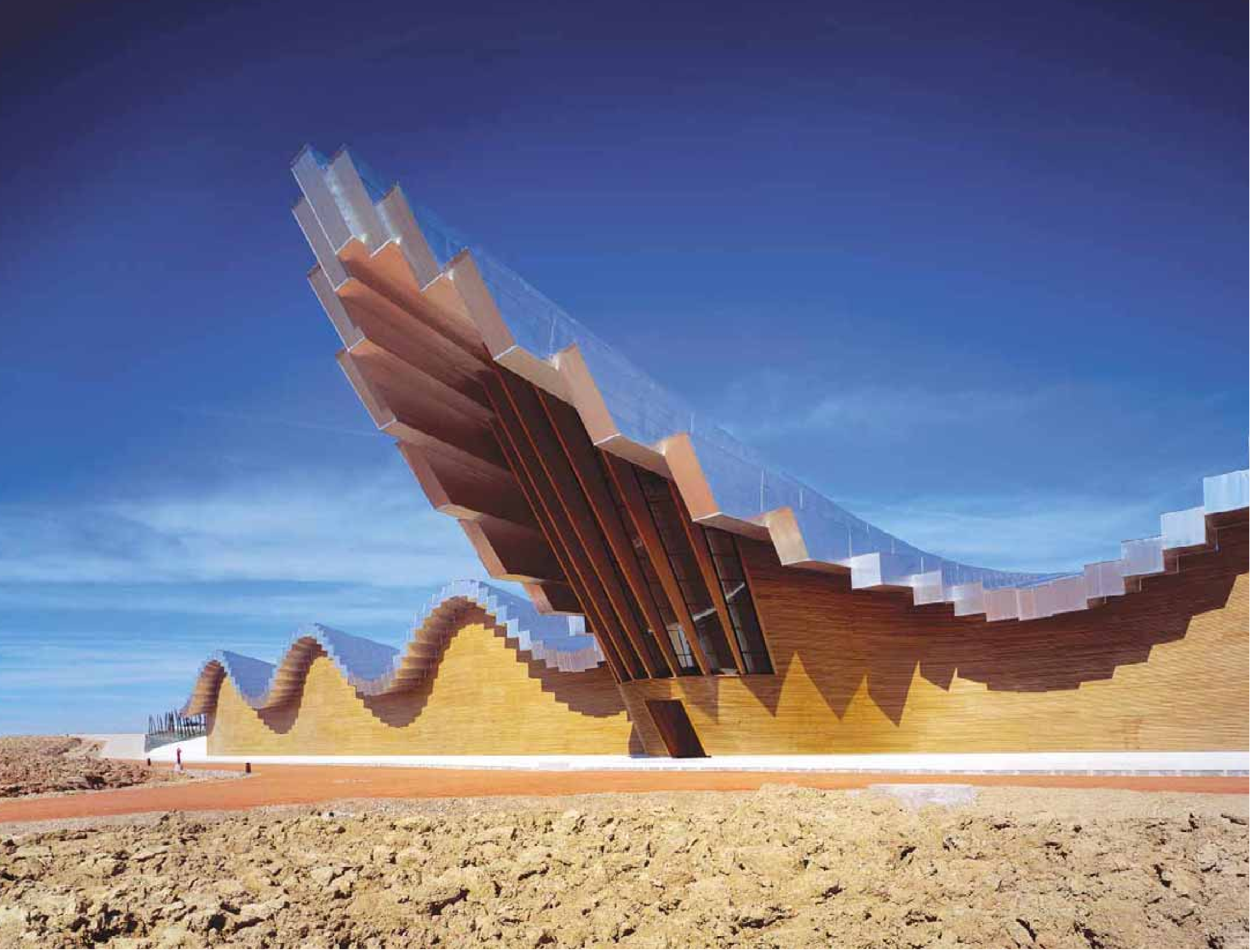
In the case of Ysios, the structure employs laminated wood beams of Scandinavian fir, which span 85 feet between the front and back of the building, rising up and down along the exterior walls in sine curves. Reflective aluminum sheeting serves as the finishing material for the roof. "The effect of sunlight on the roof creates a wave-like movement, like the changes in tonalities of the surrounding vineyards," says Calatrava.

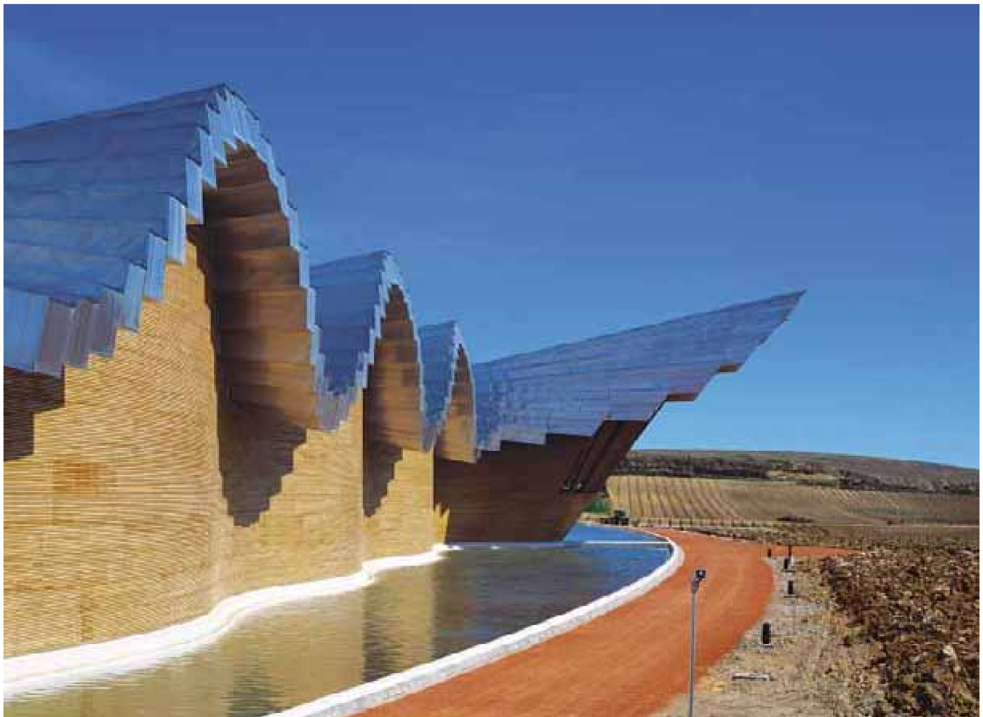
David Cohn is RECORD*'s Madrid-based correspondent and the author of* Young Spanish Architects.

PHOTOGRAPHY: © ROLAND HALBE

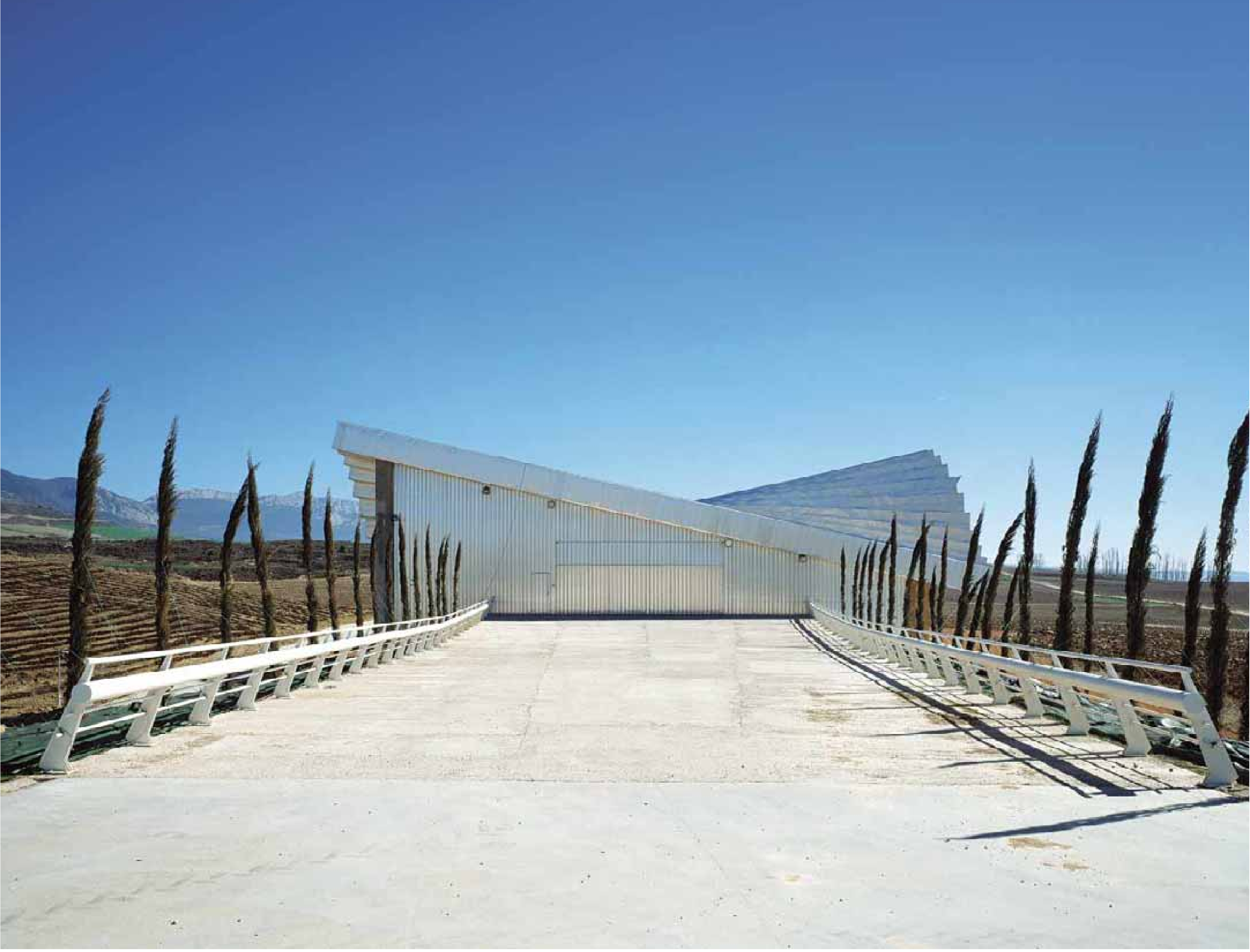


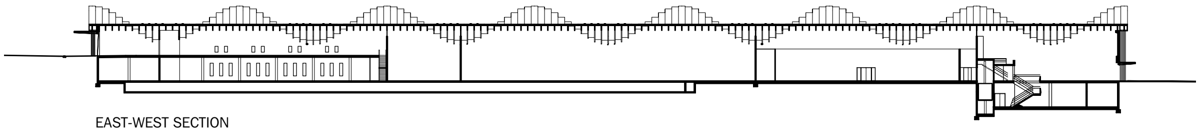
The central bay of the building kicks up a visual storm and provides a second-story space for dining. The building sits at the base of the Cantabrian Mountains (opposite).



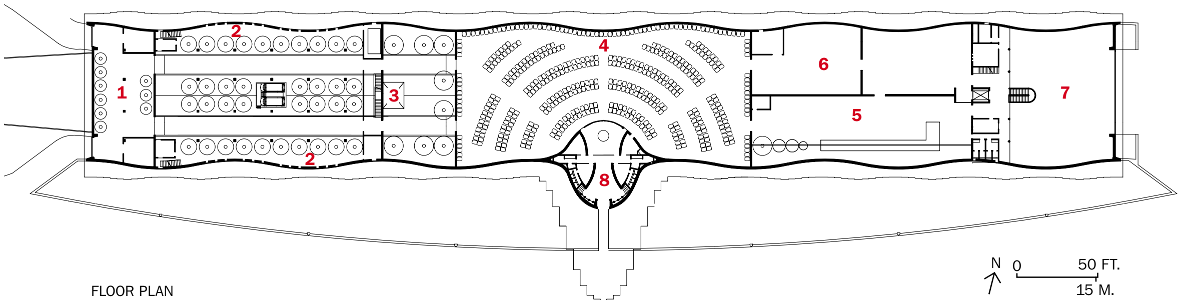


Calatrava designed the building so its rolling roof is assembled from straight wood members (above and left). The long load-bearing walls on the north and south also undulate, but they run parallel to each other, so roof beams remain the same size, except at the central bay. The east and west sides of the building are clad in corrugated aluminum (opposite, top).





EAST-WEST SECTION


2
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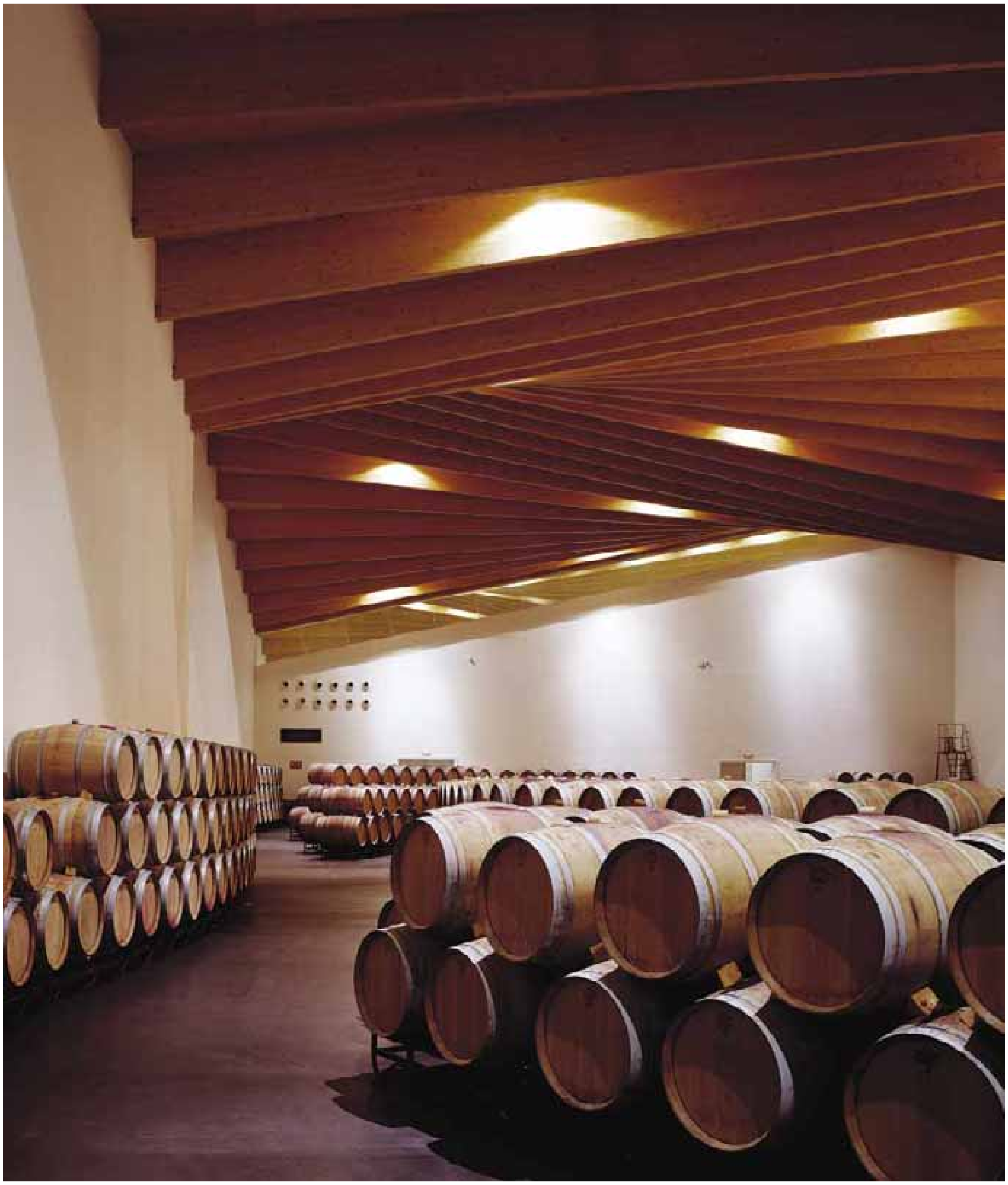
FLOOR PLAN

1. *Grape intake*
2. *Production*
3. *Barrel cleaning*
4. *Storage*
5. *Bottling*
6. *Bottle storage*
7. *Shipping*
8. *Visitors' lobby*

Calatrava kept the interiors of the industrial portions of the building simple so the dynamic roof structure takes center stage (right and below). The winery can produce 1.5 million bottles of wine a year.



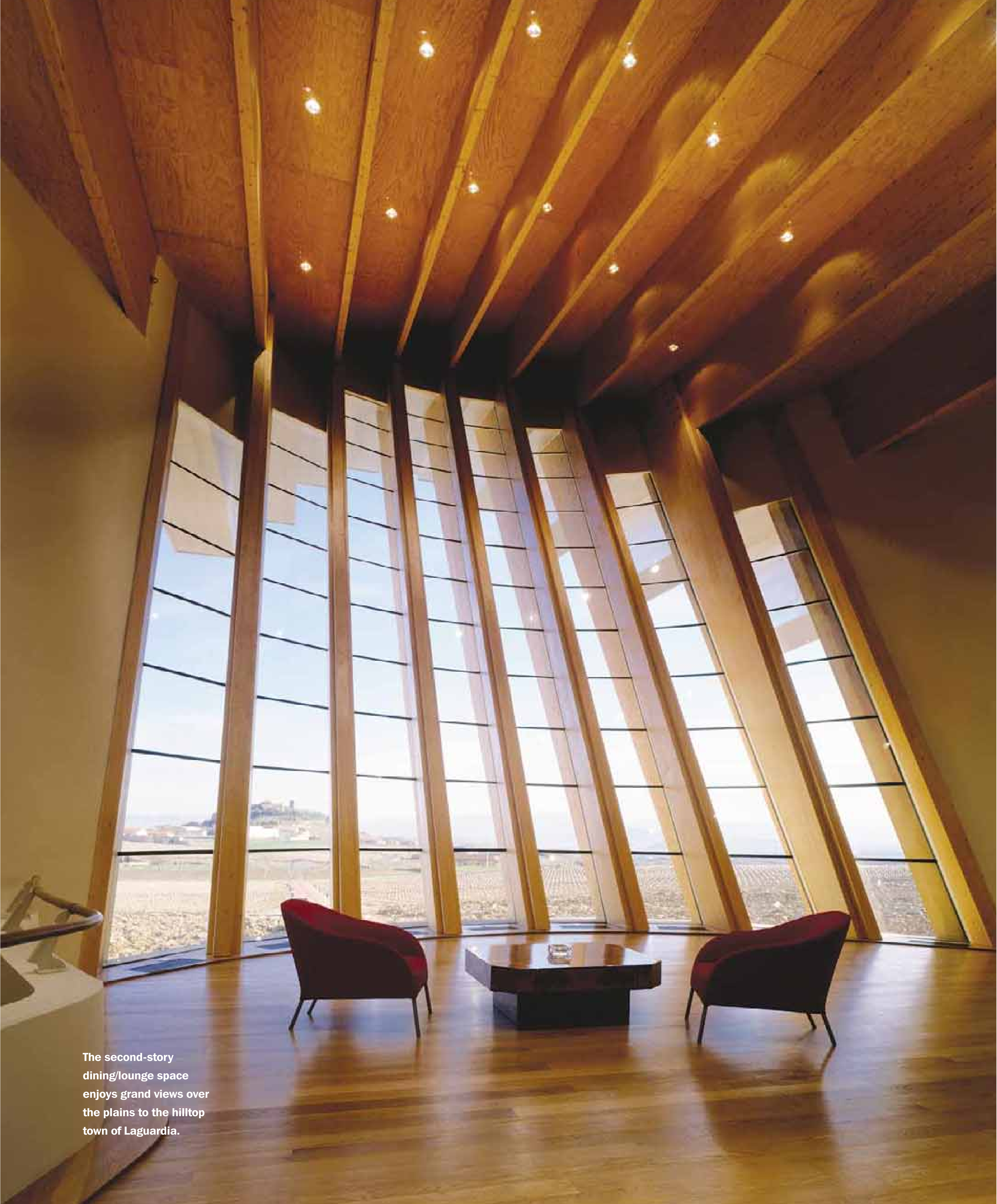
More than 640 feet long, the winery is oriented so its main elevation faces south, toward Laguardia and the highway. The north and south walls undulate in plan, which maximizes their stiffness while reducing their thickness. Calatrava finished the south facade with horizontal strips of cedar to match the tonalities of the earth under the vines, and he added a reflecting pool with a mosaic border of broken ceramic tiles that runs the full length of the building.

In a dramatic, baroque gesture, the architect applied an exaggerated kick to the building's central curves so the roof beams here project an additional 33 feet into the air. He likens this thrusting central bay to the mountain peaks behind the structure. The feature accommodates an upper-level dining room for visitors, who enjoy views through high, angled windows. An axial path through the vineyards leads to the visitors' entrance below the dining room and reveals the building's perfect alignment with the hilltop church of Laguardia a mile or so away.

The interior of the winery unfolds in a roughly linear sequence on two levels, with hoppers of grapes entering on the west and finished cases of bottled wine exiting to the east. Calatrava exposed the utilitarian nature of the interiors, specifying simple materials and finishes and allowing the swooping ceilings and zigzagging walls to provide the visual excitement.

Commentary

Flaunting its luminous curves, the Ysios Winery claims a place in the landscape with festive bluster. Its effects are large-scale and direct, grand theater rather than intimate conversation. Such an approach, though, runs the risk of provoking a *Wizard of Oz* effect if one steps off the central axis and peeks behind the scenes. But this tension is, after all, part of the attraction and mystery of the theater. And Calatrava's design captures that magic, conjuring an imaginative and animated architecture from base materials. ■



The second-story dining/lounge space enjoys grand views over the plains to the hilltop town of Laguardia.

Mission Hill Estate Winery

Westbank, British Columbia

2

OLSON SUNDBERG KUNDIG ALLEN CREATES A HILLTOP VILLAGE FOR A WINERY THAT IS BOTH TOURIST DESTINATION AND MANUFACTURING FACILITY.

By Sheri Olson, AIA

Architect: *Olson Sundberg Kundig Allen Architects—Tom Kundig, AIA, principal architect; Brett Baba, project manager; Les Eerkes, Gladys Ly-Au Young, project team*
Associate architect: *R. Martin Cruise Architect*
Client: *Mission Hill Family Estate*
Engineers: *John Bryson & Partners (structural); Yoneda & Associates (mechanical); Falcon Engineering (electrical)*
Consultants: *Janice Viekman, Orangutang Design (interior designers); Lovinger 2 (landscape); Brown Strachan Associates (acoustical); Ilium (signage)*
General contractor: *Selco Construction*

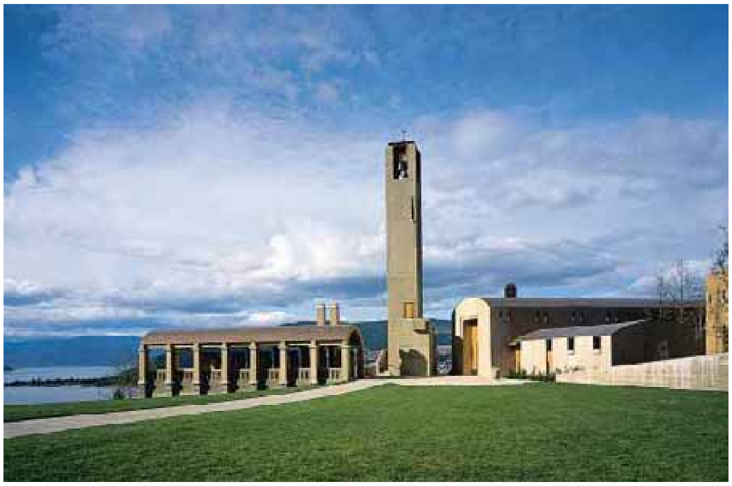
Size: *120,000 square feet*
Cost: *$21 million*

Sources
Precast concrete: *Advance Precast*
Aluminum curtain wall: *Custom by Competition Glass*
Copper roofing: *Tomtar Roofing and Sheet Metal*
Cabinetwork: *Berard Design Group*
Cabinet hardware: *Hafele*
Tables and chairs: *Custom by William Switzer, design by Janice Viekman*
Exterior landscape lighting: *BK Lighting*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

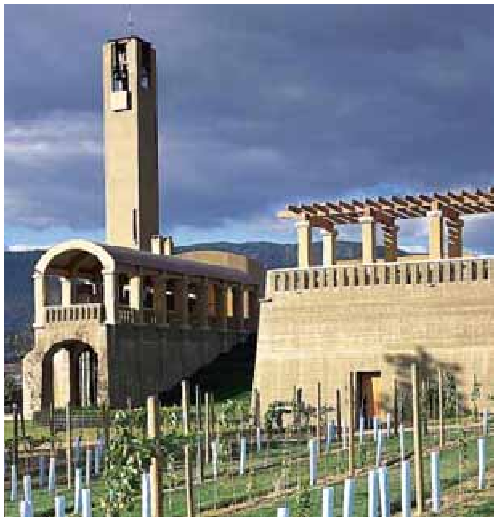
Screw caps are superior to corks, but in the wine industry image is everything. In 1994, Mission Hill, an upstart winery, won an international competition for best chardonnay but still had to battle British Columbia's reputation for bottom-of-the-barrel wines. "People weren't willing to open their minds to the possibility that great wines could be made in the Okanagan Valley," says proprietor Anthony von Mandl. The valley's geography makes such quality possible. Midway between Vancouver and Calgary, it is the northernmost reach of the Sonoran Desert. Glacial lakes run its length, moderating temperatures year-round and creating microclimates that allow grapes from around the world to thrive.

For a hilltop site overlooking 92-mile-long Lake Okanagan, von Mandl asked Tom Kundig, AIA, of Olson Sundberg Kundig Allen, to create an architectural destination. "Anthony wanted Mission Hill to be a place that once visited would not be forgotten," says Kundig. By raising the standard for all Okanagan wineries, von Mandl saw the potential for wine tourism like Napa Valley's.



Program

A winery is a strange mix of hospitality facility and petrochemical plant. On the public side are wine-tasting rooms, gift shops, and food concessions; on the business end are high-tech presses, huge stainless-steel vats, and bottling lines. "It's a complex program to resolve in terms of how wine making interfaces with the guest experience. People want to see the entire process, but we don't want them run over by a forklift," says Kundig. Likewise, the wine maker is leery of people bringing heat and light into the controlled environment of the cellar.

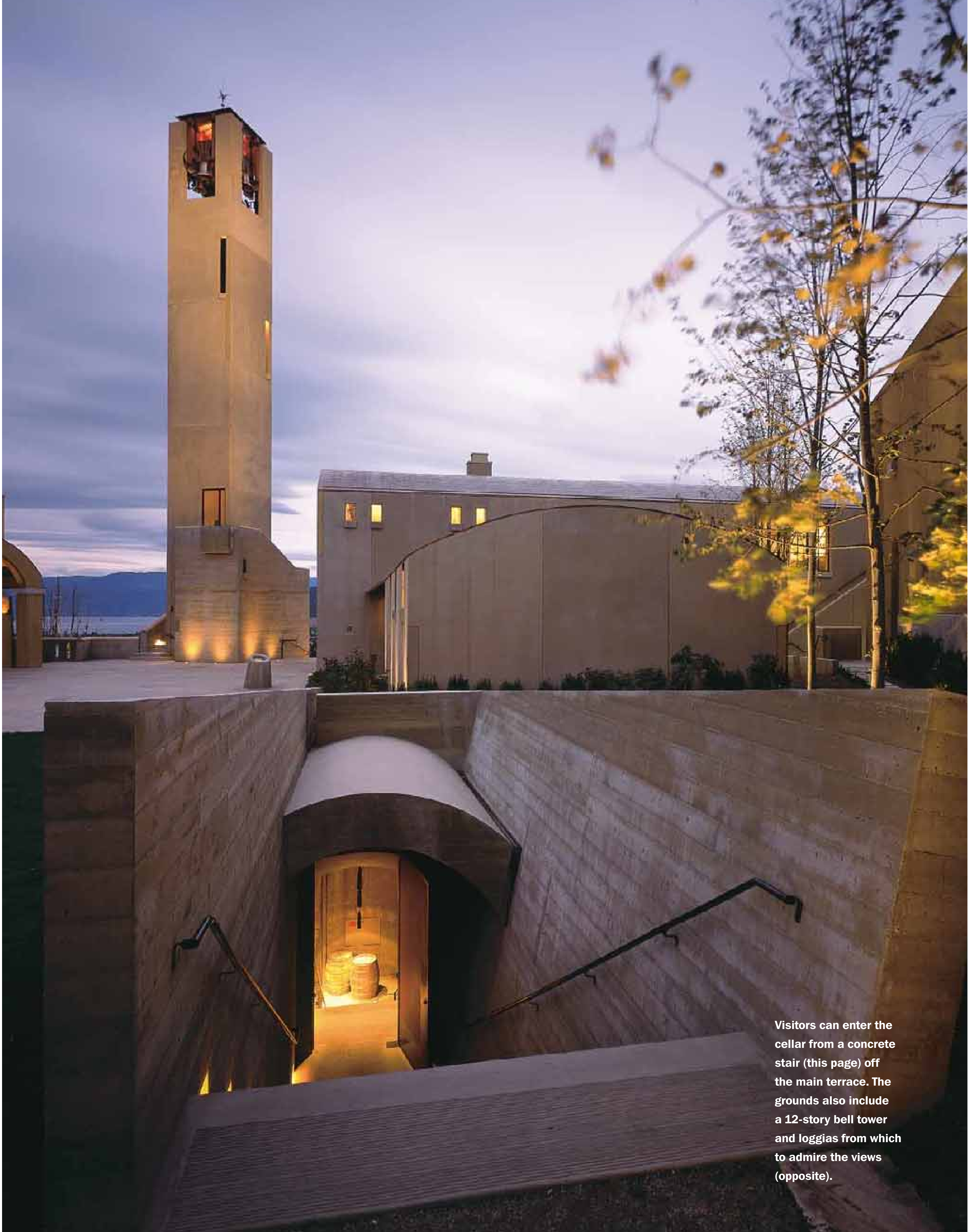


Solution

In 1981, von Mandl bought a distressed winery/brewery on Mission Hill and began a $21 million transformation. "The first phase was healing the damage done to the hilltop by an ugly existing warehouse," says Kundig. The old 35,000–square-foot building, now disguised by earth berms, ivy, and trees, recedes into the background, allowing the dramatic new public elements to step into the spotlight.

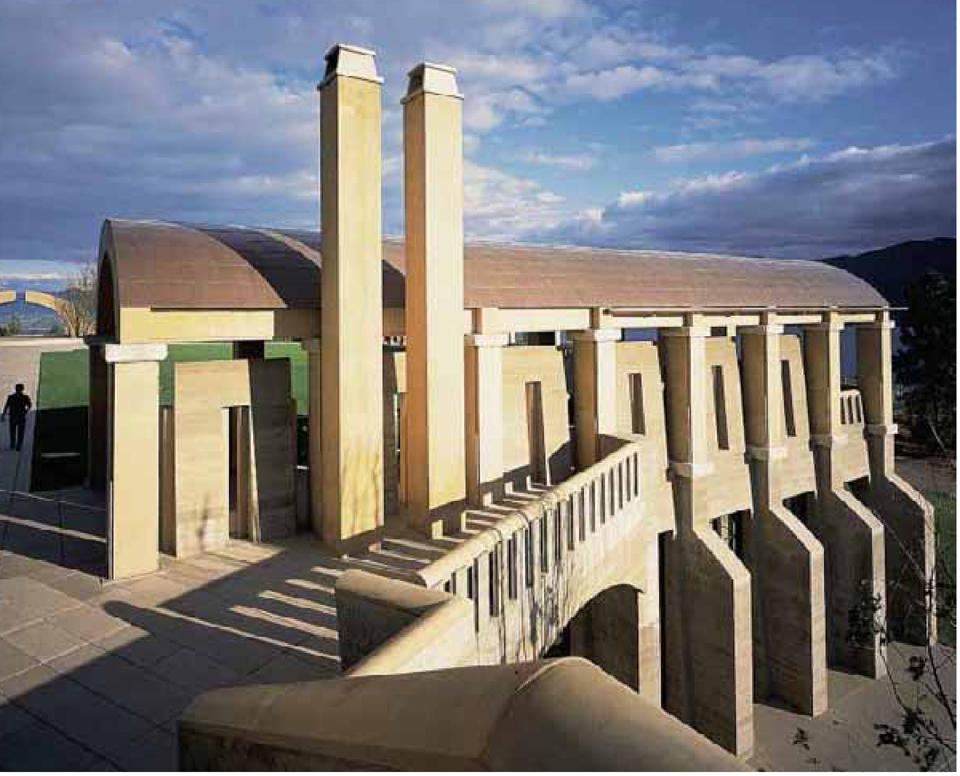
Visitors wind their way up the hill to a battered wall that recalls the fortified towns that stud the Rhine's wine country. This is the

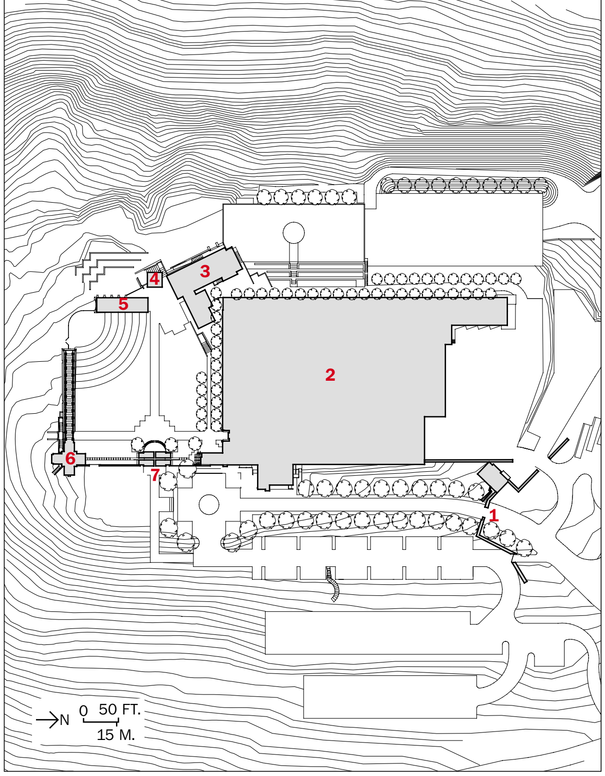
Contributing editor Sheri Olson, AIA, is the architecture columnist for the Seattle Post-Intelligencer.



Visitors can enter the cellar from a concrete stair (this page) off the main terrace. The grounds also include a 12-story bell tower and loggias from which to admire the views (opposite).

PHOTOGRAPHY: © PAUL WARCHOL





1. *Entry gate*
2. *Production/offices*
3. *Visitors*
4. *Bell tower*
5. *Loggia*
6. *Tasting*
7. *Entry arch*

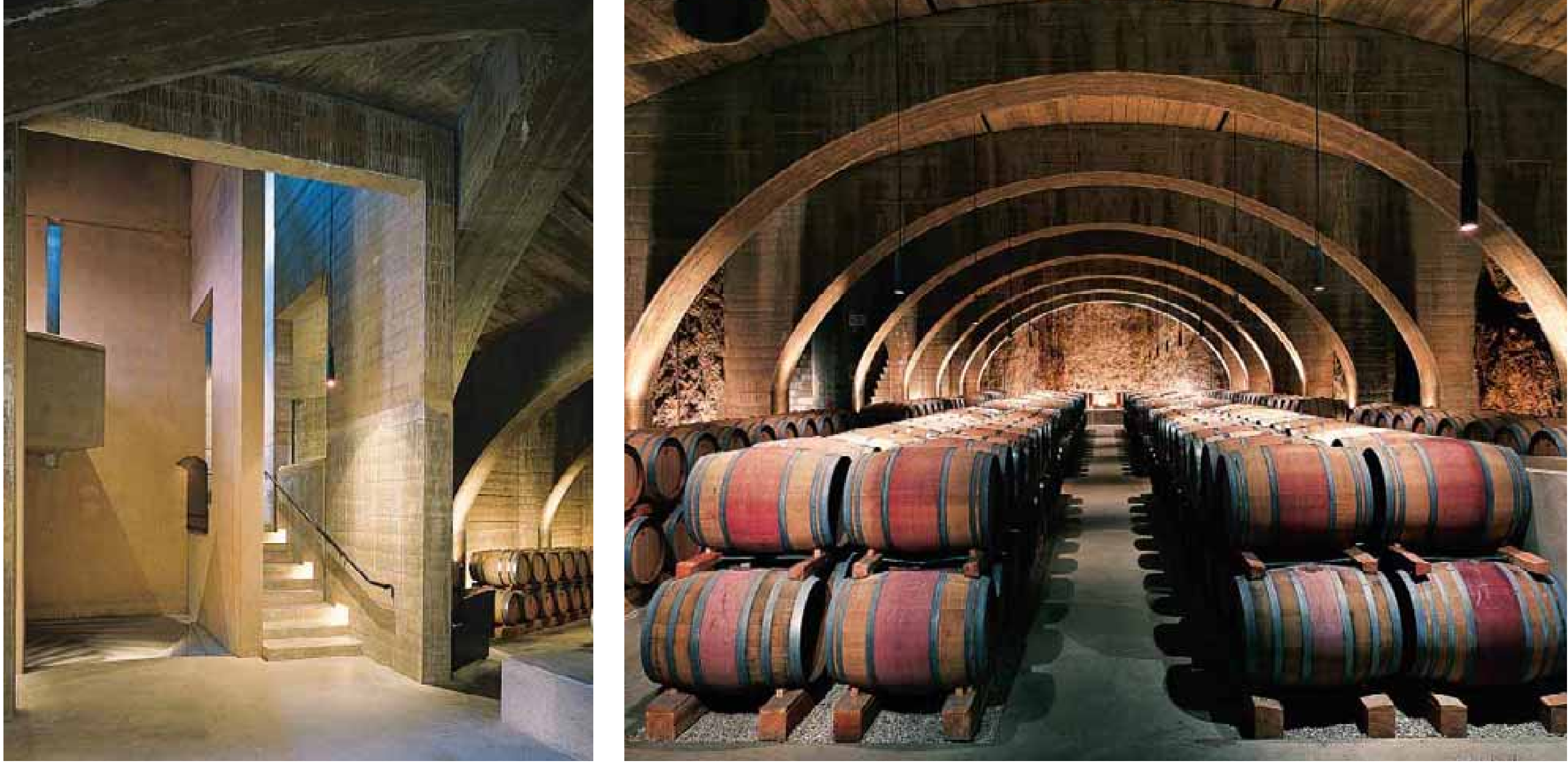
A split concrete arch (left in photo above) frames views of the tower and lake and serves as a formal entry to the terrace. Dining (left) and tasting are part of the winery's educational function.

first threshold in a series of outdoor rooms that shift from the scale of the Coast Mountains to the cultivated garden. "The architectural pieces are placed as thresholds and windows that conspire to reveal the natural landscape" says Kundig.

Visitors walk through a demonstration vineyard (the winery's 850 acres of vineyards, the second largest in Canada, lie 90 minutes south) before turning through oversize concrete arches into a central courtyard. The camouflaged warehouse forms the north wall, while loggias on the south and east break prevailing winds and provide a refuge from the intense summer sun. A grassy amphitheater opens the southeast corner to a view of the Monashee Mountains and a lake 600 feet below.

On axis with the main entry, a 10-story bell tower provides the focal point of the winery—connecting the underground cellars, the courtyard, and a panoramic view of the valley. The tower offers an instant historic reference, though updated by Kundig in interlocking precast-concrete panels. To unify the disparate pieces of the 40,000-square-foot project and save money, he developed a concrete kit of parts (arches, columns, and capitals).

Reached by a stair that



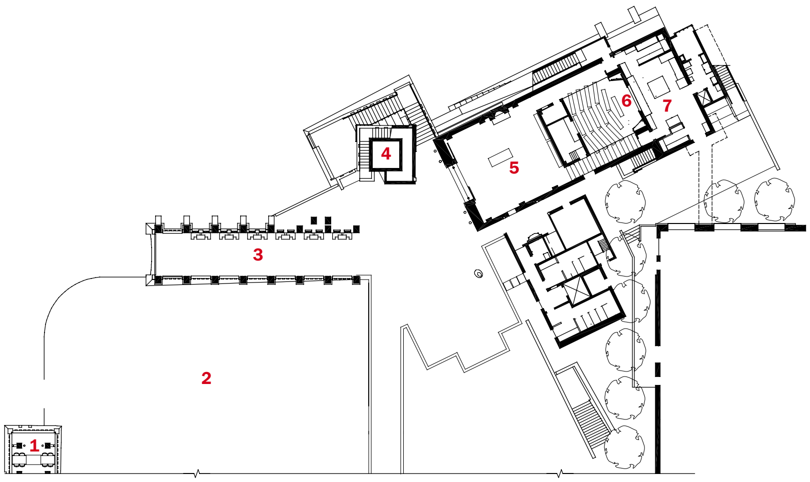
The architects abstracted a vaguely Mediterranean vocabulary, using poured concrete, granite, and metal to give it visual muscle. Rugged arches (above left and right) provide structural support and architectural drama to the cellar spaces.

wraps around the base of the tower and entered through a rough-hewn yellow cedar door, the wine cellar serves as the highlight of the tour. Inside, light filters down from small, high windows in the tower, requiring visitors to pause for a moment until their eyes adjust to the dark. The intersecting geometries of the orthogonal tower and the cellar vaults create a Piranesi-like space with granite walls visible between the board-formed concrete ribs.

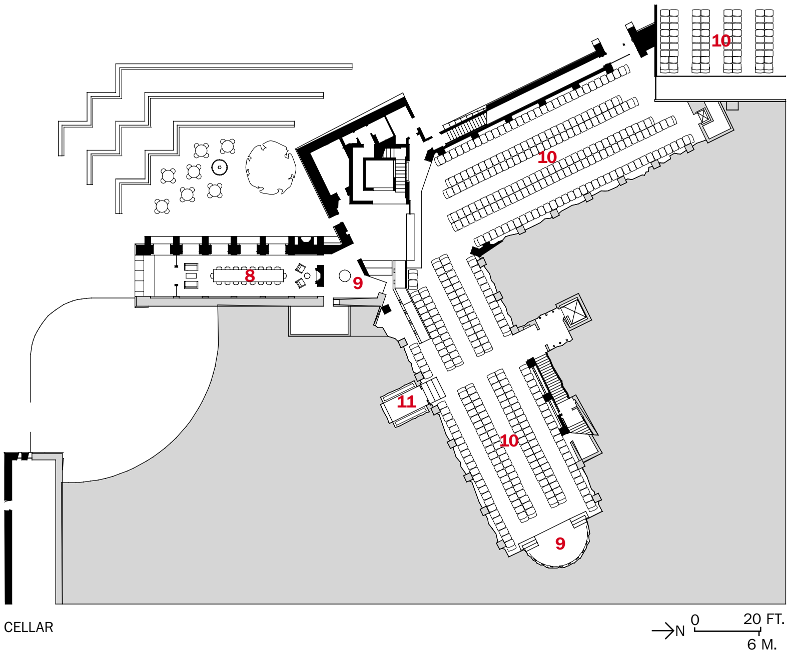
Commentary

Mission Hill has an abstract, picturesque quality befitting the site and the program. Its vaguely Mediterranean architecture may appear anomalous to Canada, but after a day in the 90-degree heat, the loggia and covered terraces offer welcome respite. The choice of materials (flat-seamed copper on the vaulted roofs, rough board-formed concrete, and ocher-colored precast concrete) adds a patina of time to the modern forms. The handcrafted bronze door handles, the toll of the bells, and the rolling vineyards are all part of the wine-country lifestyle marketed by Mission Hill. Adds von Mandl, "Wine is a metaphor for slowing down and enjoying the pace of life." ■

1. *Terrace*
2. *Amphitheater*
3. *Loggia*
4. *Bell tower*
5. *Reception*
6. *Media*
7. *Kitchen*
8. *Dining*
9. *Tasting*
10. *Cellar*
11. *Wine vault*



GROUND FLOOR



CELLAR

Bodegas Perez Cruz

Paine, Chile

3

JOSÉ CRUZ GIVES ARCHITECTURAL EXPRESSION TO A FAMILY'S RELATIONSHIP WITH THE LAND AND ITS COMMITMENT TO WINEMAKING.

By Clifford A. Pearson

Architect: *José Cruz Ovalle, Arquitecto—José Cruz Ovalle, Hernan Cruz Somavia, Ana Turell Sanchez-Calvo, design team*
Client: *Perez Cruz Family*
Consultants: *RG Ingenieros & Mario Wagner (engineering); Teresa Moller (landscape); Rolec (lighting); Ramon Goldsack (construction supervision)*
General contractor: *Ingelam; DLP*

Size: *65,000 square feet*
Cost: *$2.5 million*

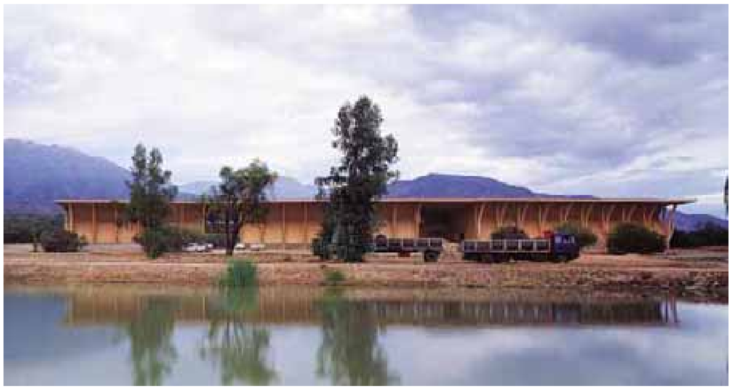
Sources
Laminated wood: *Ingelam*
Roofing: *Metcom*
Wine tanks and piping: *TPI*

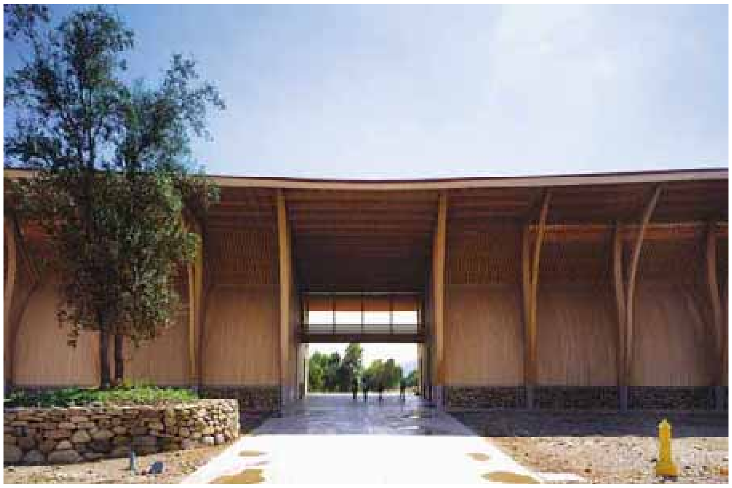
www For more information about the people and products involved in this project, go to Building Types Study at ***architecturalrecord.com***.

Winemakers work at the mercy of the soil and the heavens, so it's no wonder wineries often demonstrate a special connection to the land. This bond between man and nature, building and setting, is especially strong in Chile, where old farms are called *fundos*, a term derived from the Spanish word for foundation. In this tradition, José Cruz Ovalle's new building for the Bodegas Perez Cruz (no relation) seems to grow expressively from the local soil.

Carved from the Perez Cruz family's 1,300-acre farm in the Maipo Valley 30 miles outside of Santiago, the 370-acre vineyard sits at the foot of the Andes Mountains and enjoys a temperate, almost Mediterranean climate. Not surprisingly, people have been making wines in the Maipo Valley since the 19th century.

When the Perez Cruz family decided to get into the wine business, it ran a competition among a few architects and was impressed by Cruz's feeling for the land. His previous work—such as the Hotel explora in Patagonia, designed with Germán del Sol [RECORD, October 1996, page 108]—showed an affinity to dramatic settings.





PHOTOGRAPHY: © ROLAND HALBE

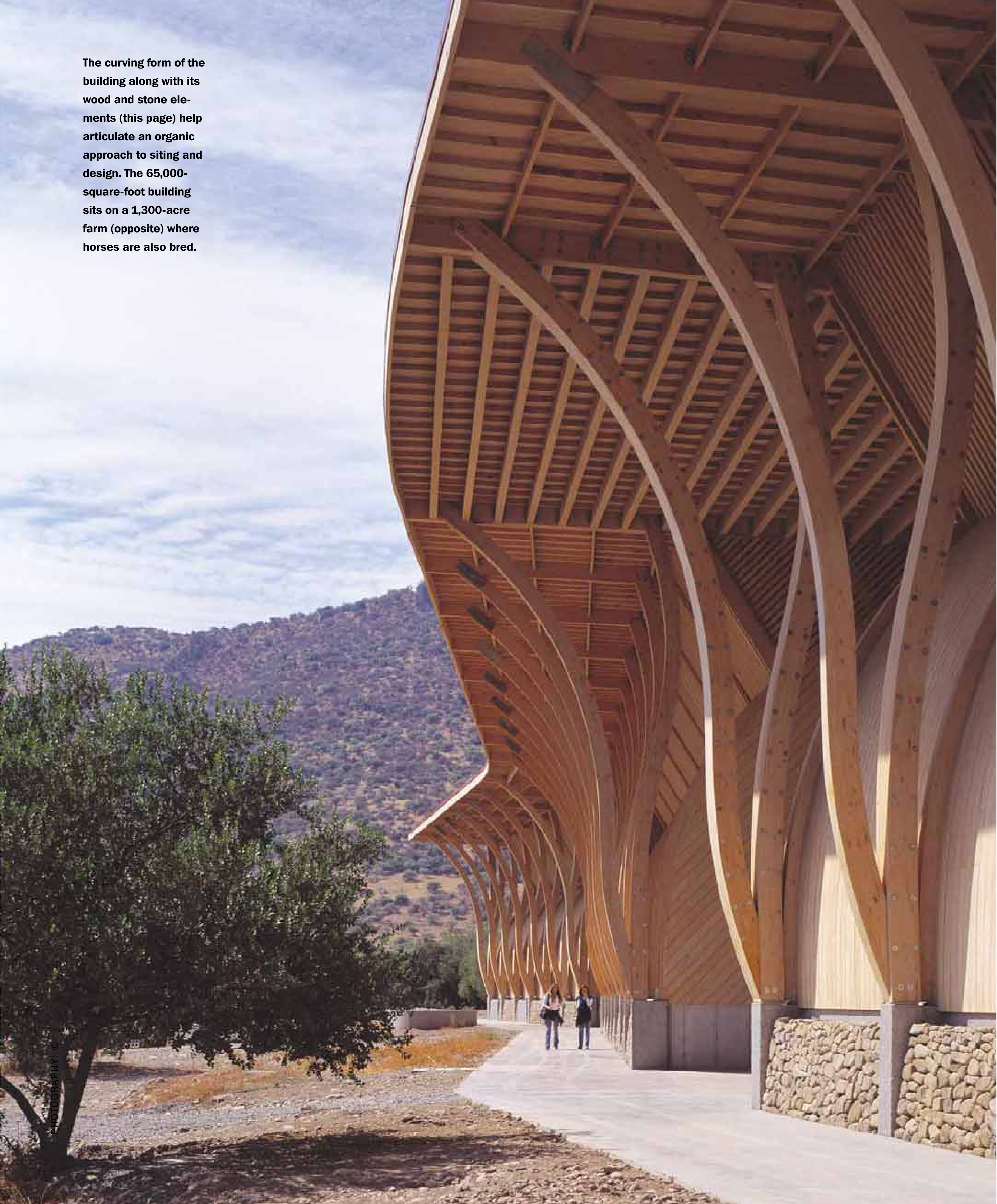
Program

While some wineries today are part hotel or restaurant or retail store, the Bodegas Perez Cruz is all production facility. Essentially a factory and warehouse for wine, the building could easily have been a dumb shed. No need to grab the tourist's eye with fancy architecture here. So Cruz's sinuous design isn't an appeal to the occasional visitor, but an organic expression of the activities performed inside and the character of the natural setting outside.

The building houses large spaces for fermenting wine in great stainless-steel vats, aging wine in oak barrels and glass bottles, and smaller spaces for research and tasting by the winemakers. It also accommodates the trucks used to deliver grapes and distribute bottles of wine to the rest of the world.

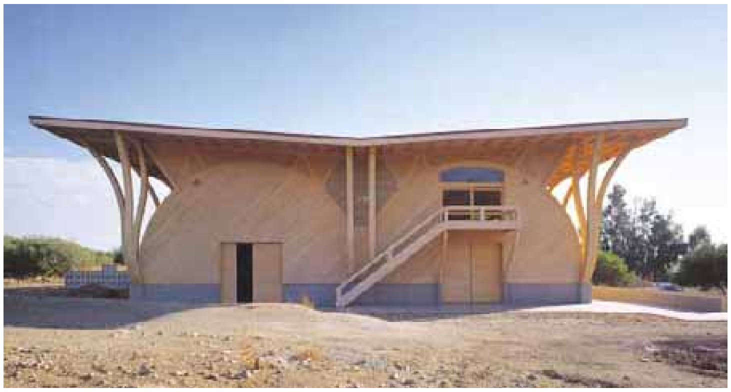
Solution

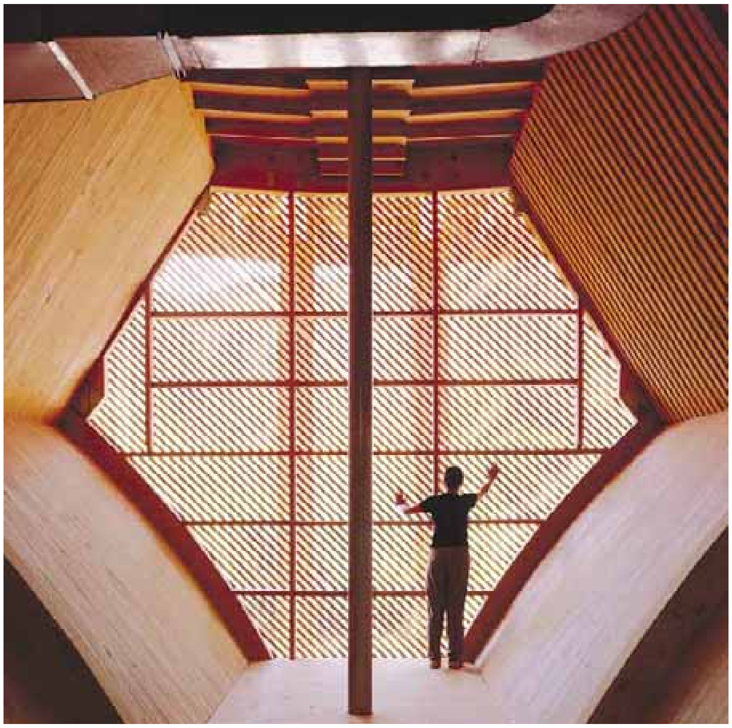
"I envisioned the building embodying the wine industry's relationship to both tradition and innovation," says



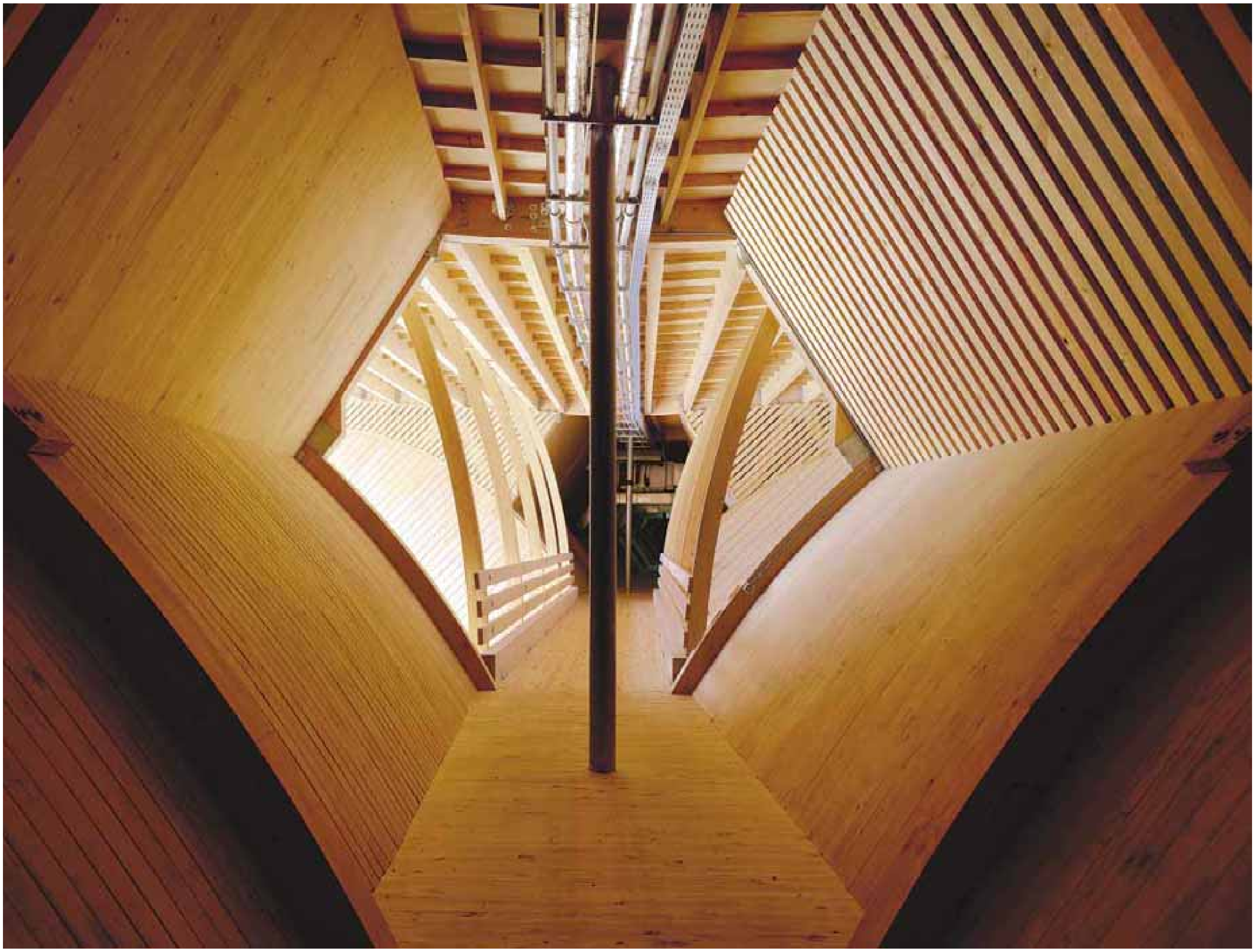
The curving form of the building along with its wood and stone elements (this page) help articulate an organic approach to siting and design. The 65,000-square-foot building sits on a 1,300-acre farm (opposite) where horses are also bred.

PHOTOGRAPHY: ©





A raised walkway (below and right) runs between the barrel-vaulted halves of the building, which are expressed on the east and west elevations (above). The design lets air circulate around the winemaking spaces.



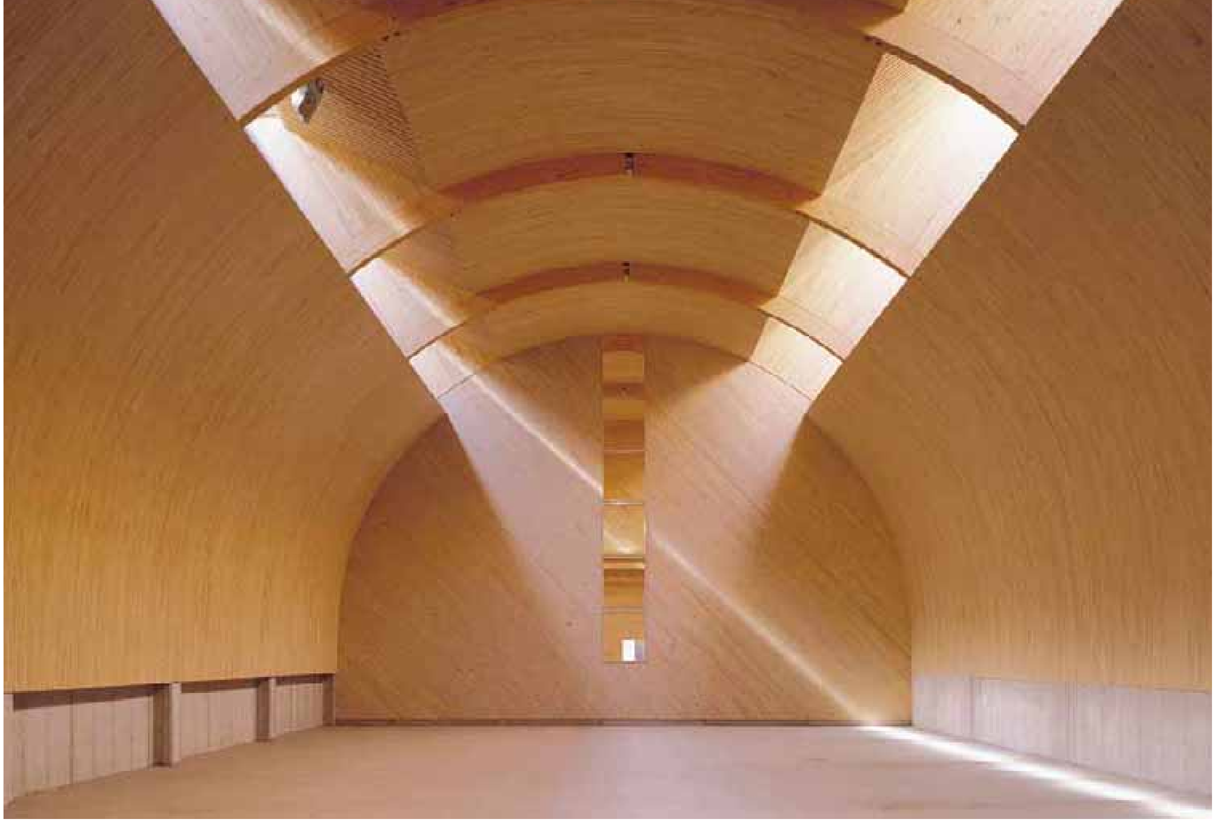
Cruz. "Without being figurative, I wanted the building to be shaped by the voluptuous nature of wine and materials like wood." So he designed the building as paired barrel-vaulted volumes that snake along the land. The barrel forms and use of wood recall time-honored elements in winemaking, while the building's bending columns and remarkable interior spaces point in a more idiosyncratic direction.

From a distance, the winery looks like one long building hugging the land. But as you get closer, you see that it is really three smaller structures connected by a common, double-jointed roof. Where the building bends, it creates two great covered patios where people can gather and enjoy a shaded outdoor space. Inside, some of the vaulted structure is kept open as double-height rooms, while some is divided by a mezzanine. A cellar runs under part of the building, offering space for secondary-fermentation equipment.

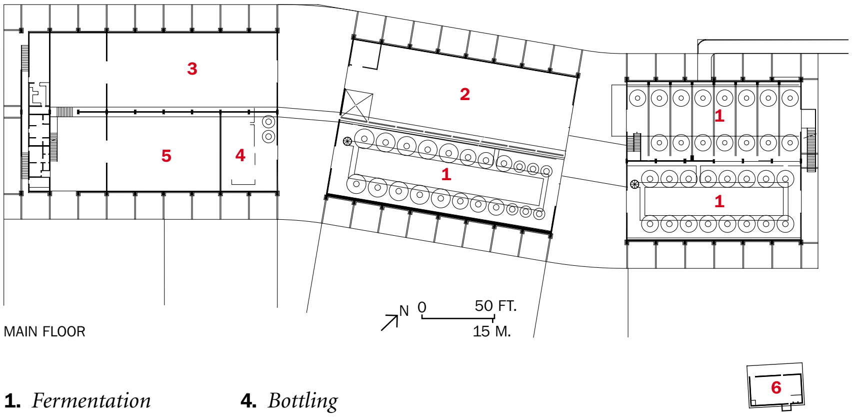
Cruz used laminated wood for structural elements such as columns, arches, and roof beams. He also created space between the building's distinctive barrel vaults and its roof so air can circulate and daylight can filter down from small clerestory windows and skylights. The architect says that all the wood used came from environmentally managed sources.

Commentary

Cruz, who moved to Chile from Spain in 1987, brought with him some of the lyrical Modernism of his native Barcelona. Using simple materials and elements, he and his wife and partner, Ana Turell, turned their building for Bodegas Perez Cruz into an eye-catching, muscle-flexing exercise in architectural engineering. Capturing the spirit of its Andean setting, the building also finds a way of expressing the sensual nature of wine without ignoring the more prosaic process of manufacturing it. The result is a building that seems to feel as right to the people who work in it as to the people who just visit it. ■

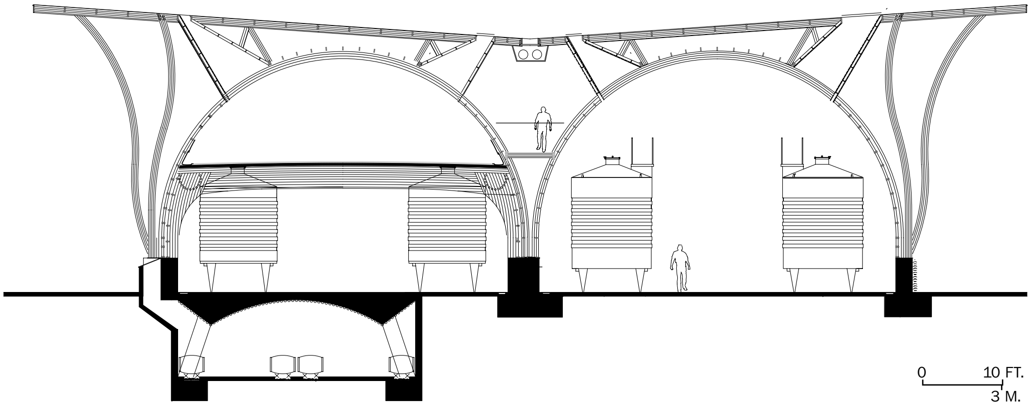


Air and daylight filter from above, so temperature and humidity can be controlled (above). The plan accommodates the linear process of winemaking, from fermentation to bottling and shipping.



MAIN FLOOR

1. *Fermentation*
2. *Barrel storage*
3. *Bottle storage*
4. *Bottling*
5. *Receiving*
6. *Mechanical*



CROSS SECTION

Bodegas Julián Chivite

Arínzano, Spain

4

RAFAEL MONEO RETURNS TO HIS HOME TURF TO DESIGN A WINE COMPLEX THAT BLENDS VINTAGE STRUCTURES WITH MODERN ONES.

By David Cohn

Architect: *José Rafael Moneo—Rafael Moneo, principal; Francisco González Peiró, Mariano Molina, Eduardo Miralles, Julio Oloriz, Pedro Elcuaz, project team*
Client: *Bodegas Julián Chivite/Julián Chivite Winery*
Engineer: *Jesús Jiménez Cañas (structural)*
General contractor: *ACR Construcciones*

Size: *110,000 square feet*
Completion date: *March 2002*

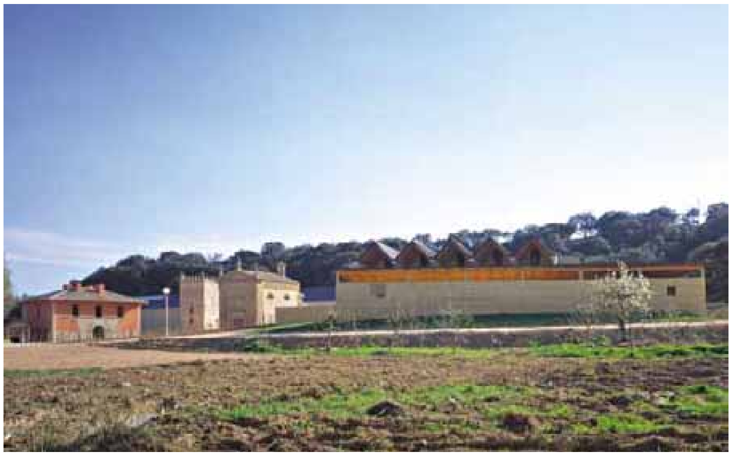
WWW For more information about the people and products involved in this project, go to Building Types Study at ***architecturalrecord.com***.

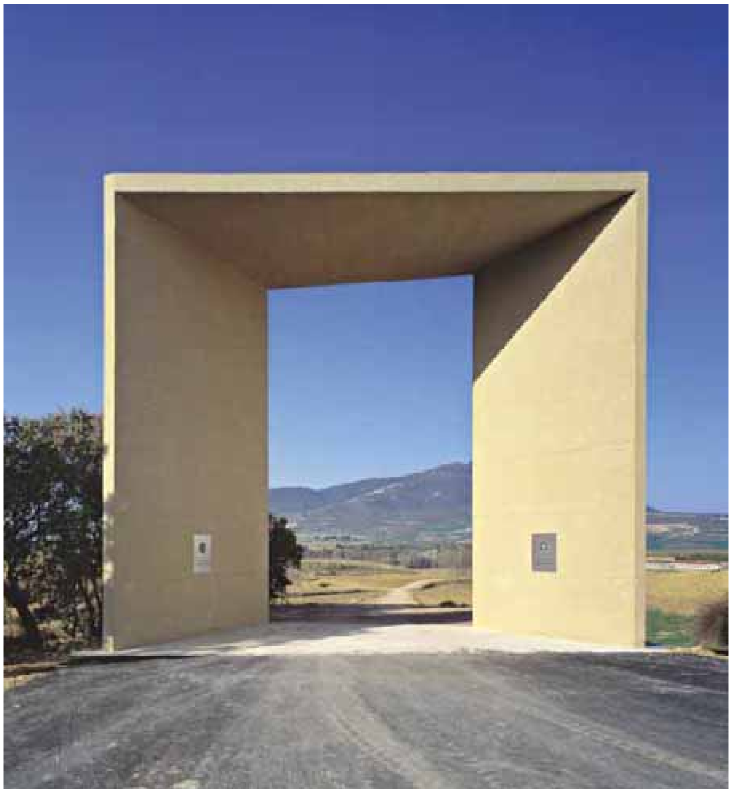
When Rafael Moneo describes the setting for the Chivite Winery along the winding Ega River, in the northern Spanish province of Navarra, it is clear he is talking about a land he knows well. “This is where I was born,” he says, speaking of the region’s abrupt hills, impressive woods of oak, and high pastures of thyme and rosemary. “This is a landscape that I consider part of me.”

It is also an important part of the Chivite family, which has been making wines here since the 1600s. Julián Chivite, the father of the present owners and a friend of Moneo’s father, hired Moneo to design a new winery on an old estate known as the SeZorío de Arínzano, which happens to be just 50 miles north of Tudela, where Moneo was born 66 years ago.

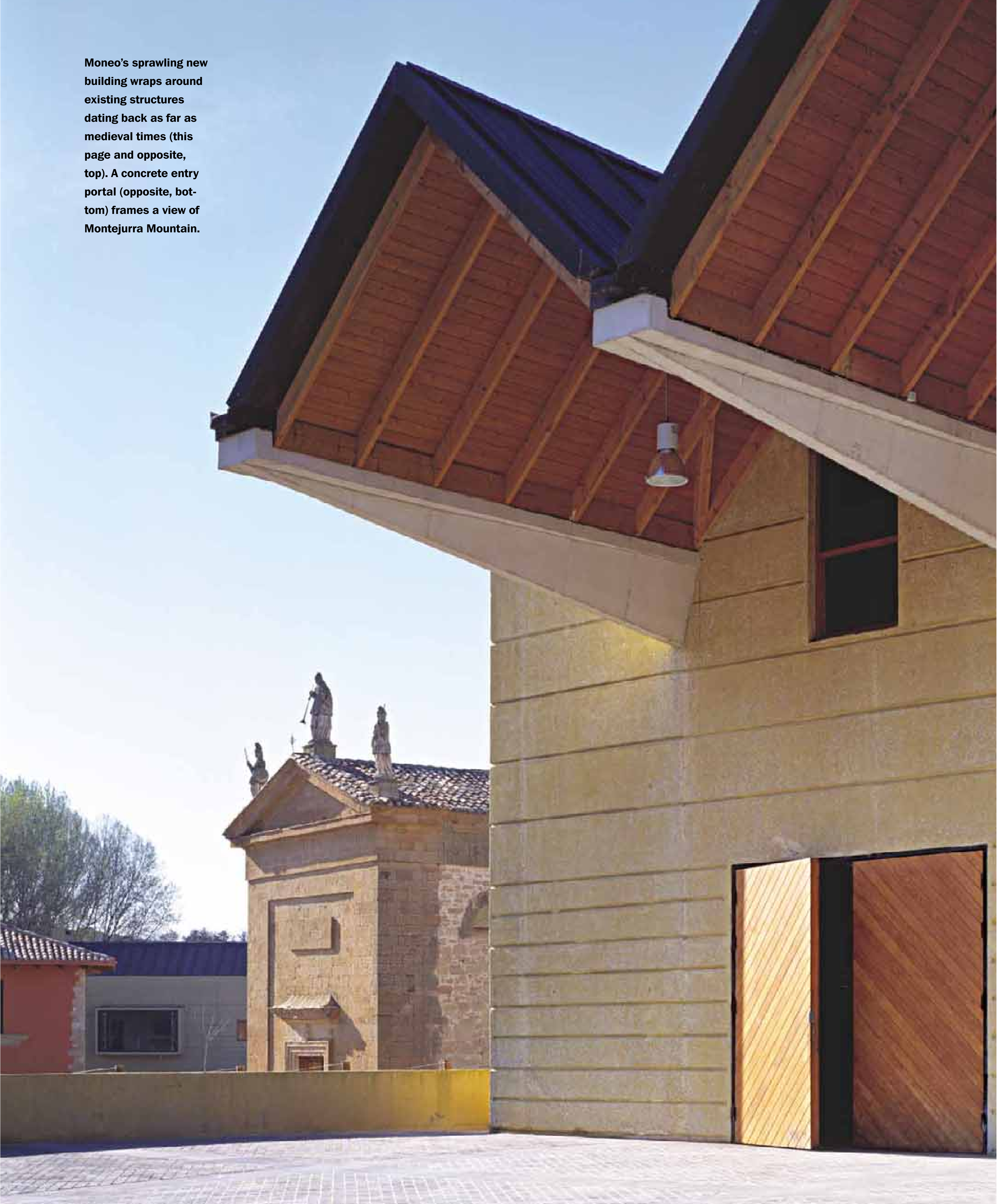
Program

In 1989, Julián Chivite bought the SeZorío and its 740 acres to develop a new line of select red and white wines. The remarkable site included a compound with a medieval tower, an 18th-century mansion, and a Neoclassical chapel built in the 19th century. Moneo’s task was to design an industrial plant that could produce as many as 225,000 bottles of wine a year and fit the structure into this rich historic and natural setting. The building needed to accommodate the latest technical

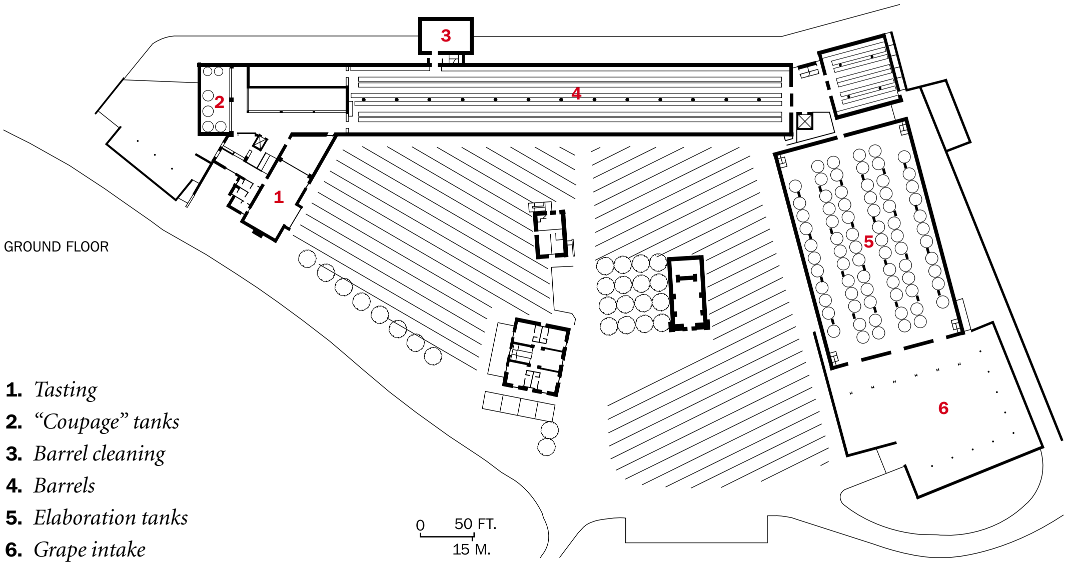




PHOTOGRAPHY: © ROLAND HALBE

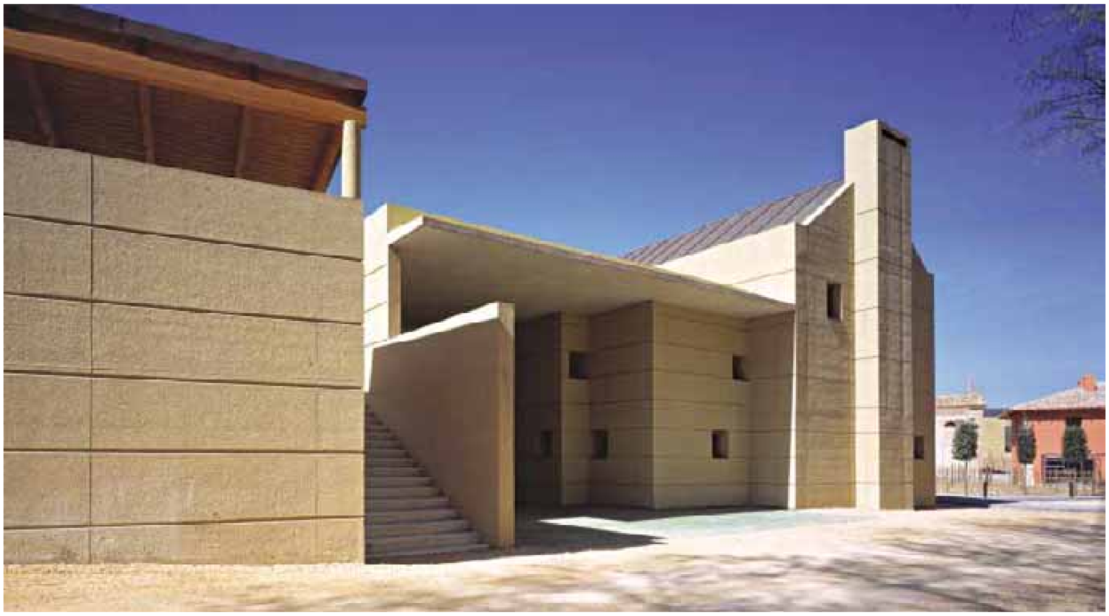


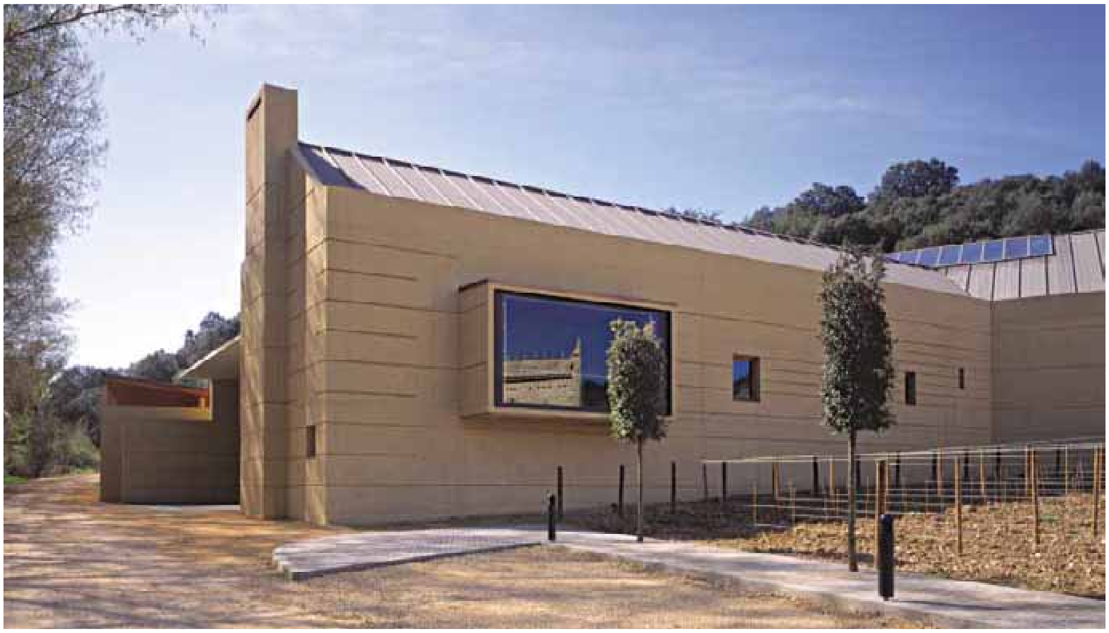
Moneo's sprawling new building wraps around existing structures dating back as far as medieval times (this page and opposite, top). A concrete entry portal (opposite, bottom) frames a view of Montejurra Mountain.



GROUND FLOOR

1. *Tasting*
2. *"Coupage" tanks*
3. *Barrel cleaning*
4. *Barrels*
5. *Elaboration tanks*
6. *Grape intake*





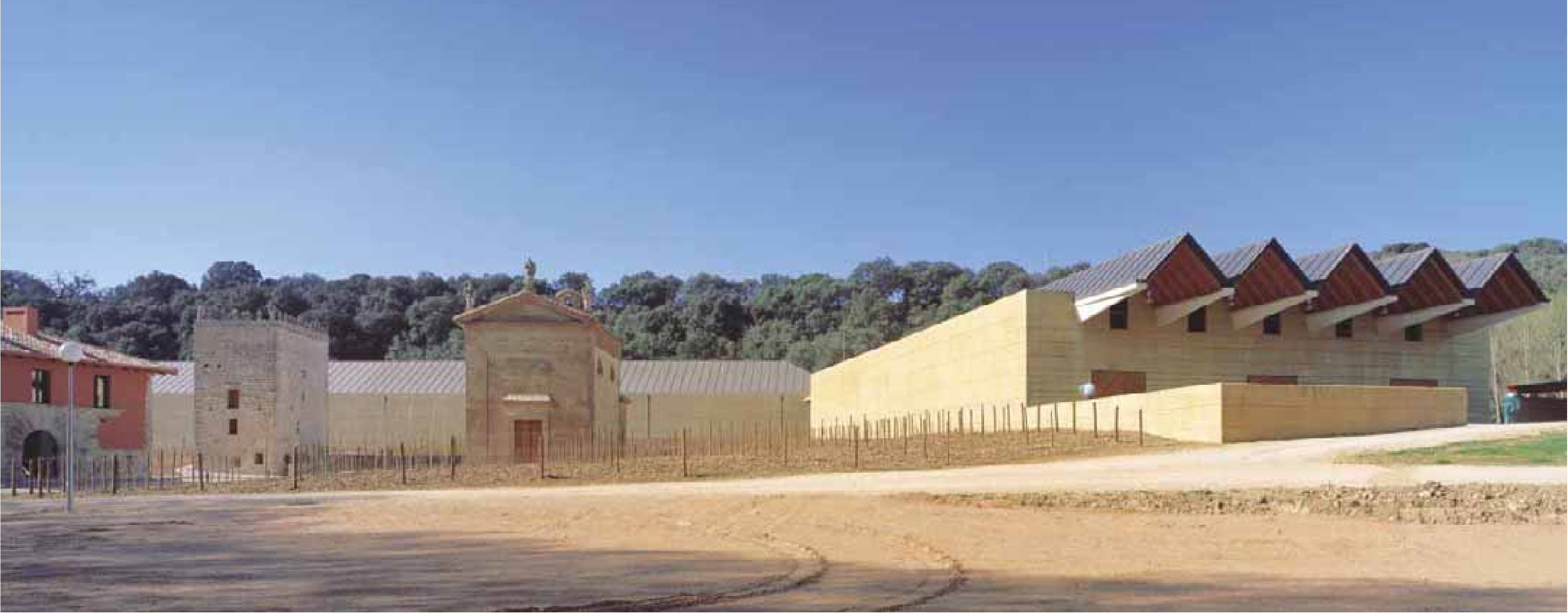
advances in winemaking while offering a warm welcome to visiting wine buffs and clients.

Solution

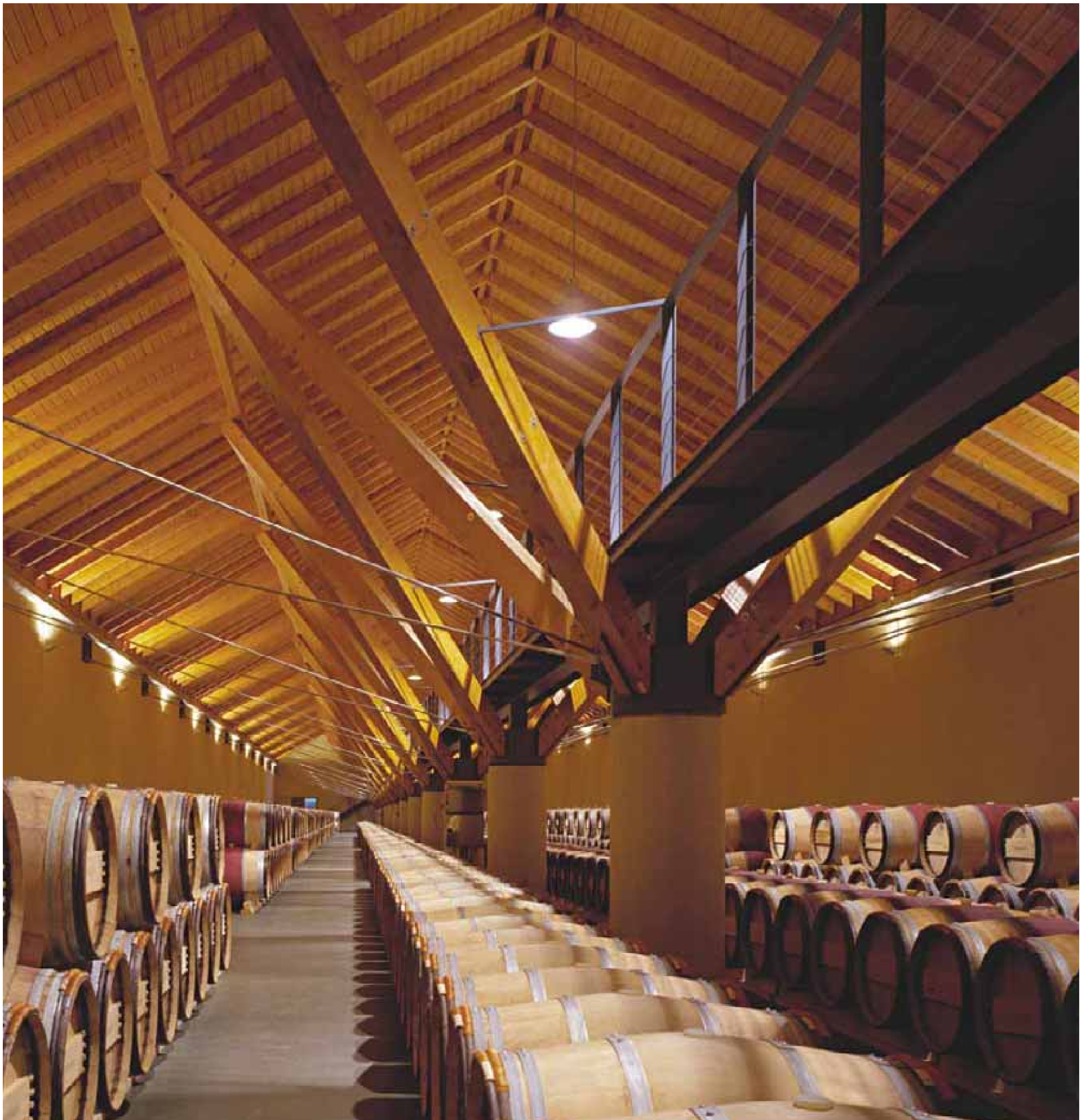
Moneo conceived of the building as a backdrop to the freestanding historic structures, embracing them on three sides. Its longest arm is set against a low escarpment that defines the riverside terrace on which the buildings stand. The walls are sandblasted concrete that matches the stony soil in texture and color and has the same kind of white pebbly aggregates. Moneo expects the walls to acquire a stonelike patina over time, while the copper roofs will oxidize, blending with the foliage of the holm oaks behind them. The three wings of the building organize the production process in a linear sequence, from the loading of grapes at one end of the structure to the shipping dock and wine-tasting room at the other, an arrangement that clearly structures visitors' tours through the winery.

Procession is also important in Moneo's plan for the site as a whole. From a monumental concrete entry portal beside the highway, which frames a view of the nearby Montejurra Mountain, a dirt road runs through the vineyards to the river, where a narrow concrete bridge crosses into the winery compound. Moneo demolished several nondescript agricultural buildings on the site to make way for the winery. But he also restored the chapel, rehabilitated the stone tower as a residence for the estate's caretaker, and radically restructured the mansion as a four-room hotel for visitors, removing later additions and adding an outdoor pergola and a winter garden. The three structures (chapel, tower, and mansion) stand in a garden of newly planted grapevines.

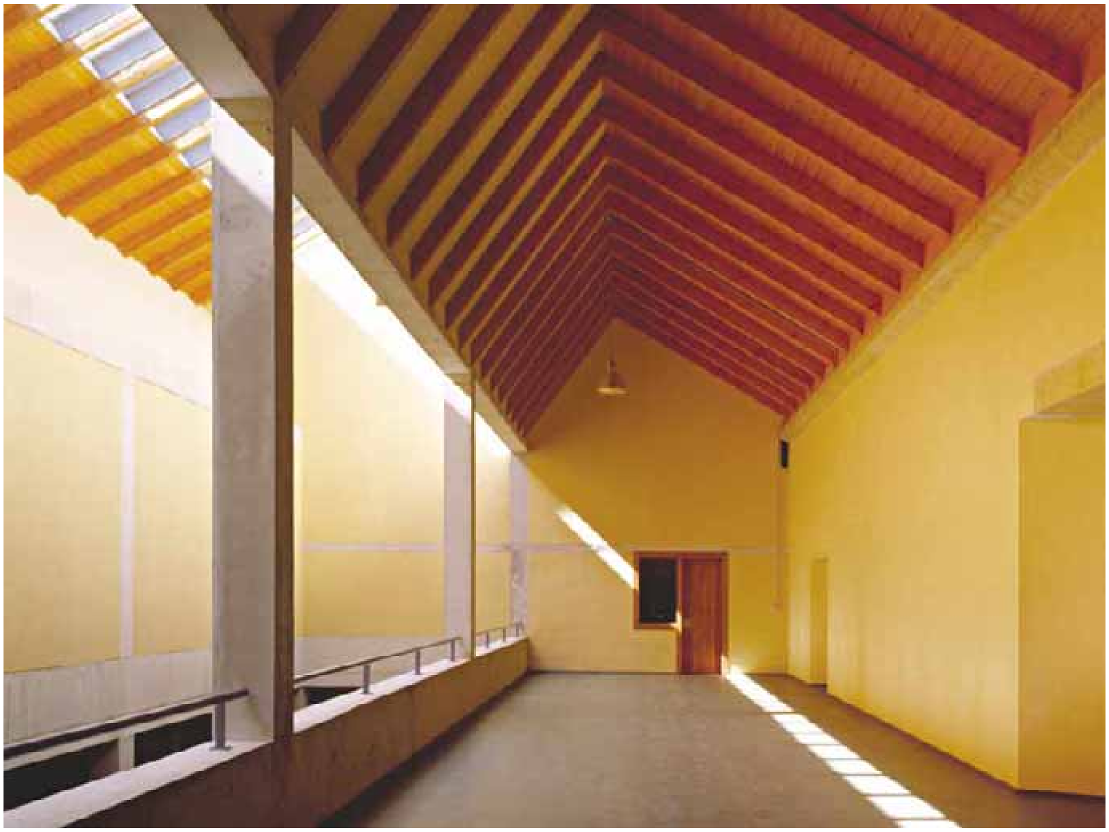
In the winery, Moneo uses a series of architectural incidents to mark the stages of a visitor's progress through the building. At the entry, the roof's five parallel gables project over a walled court, forming a protective canopy to

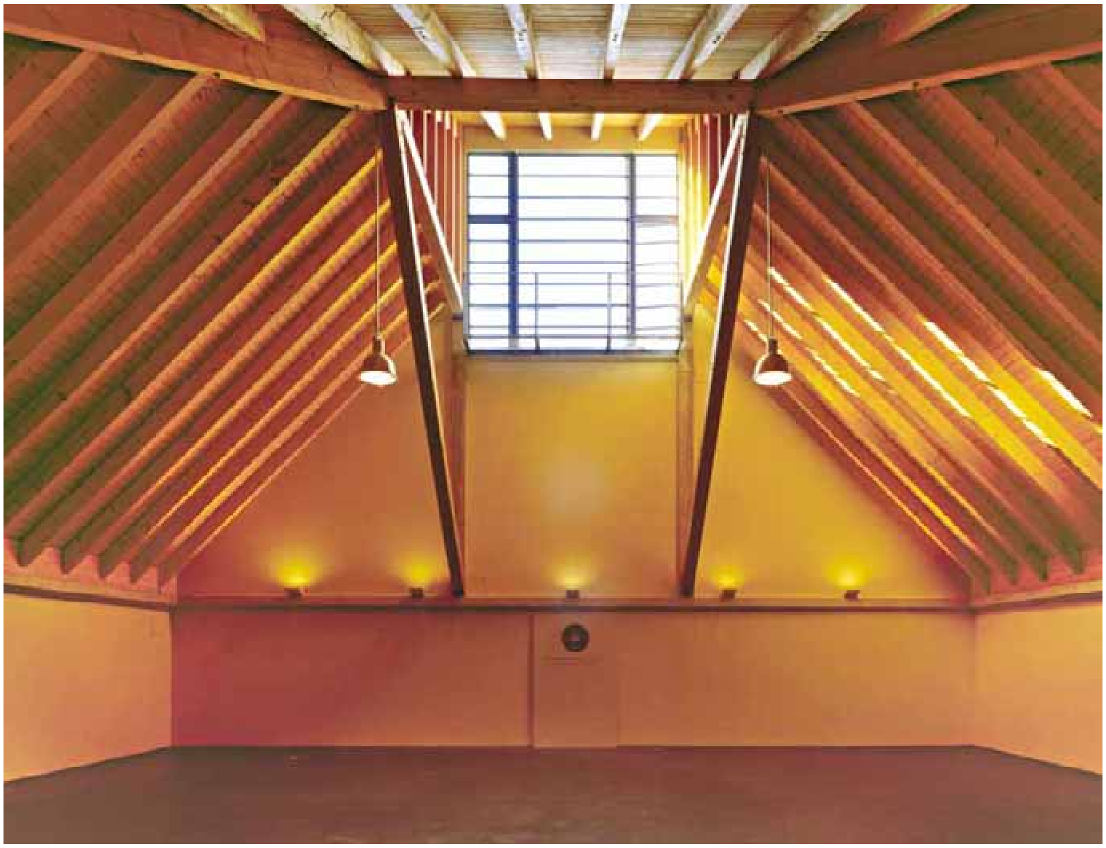


The new building (opposite and right in photo above) serves mostly as a production and storage facility. While the architects tore down a few existing agricultural buildings, they renovated the old chapel (center in photo above), turned the medieval tower (left center in photo above) into a caretaker's house, and converted the old mansion (left in photo above) into a small inn. A suspended walkway (right) provides a way of traversing a storage area without disturbing wine aging in barrels.



Because wine must be protected from direct sun, Moneo used daylight sparingly, bringing it in mostly through narrow skylights (below) or clerestory windows, like the one in a fermentation room (bottom).





receive grapes from the fields. Forty 22,000-liter fermentation tanks dominate the large entry wing of the building, while beautiful solid-oak ceilings grab the visitor's eye in the following wing.

A small room for fermentation in casks, situated at the joint between the first two wings, features a nearly pyramidal roof that unfolds on its northern face to create a high clerestory window. Beyond this, in a 325-foot-long hall containing casks used for aging wine, long oak beams and steel tension rods radiate from short central concrete columns to support a pitched roof. This extravagant contrivance allowed the architect to thread a central raised catwalk between the beams, creating a magnificent promenade for visitors on their way to a skylighted bottling area and tasting room. The space is partially buried in the terrain, with a cellar for aging bottled wine situated below. The procession through the winery ends with a tasting room designed like an English great hall, complete with large fireplace and soaring timbered ceiling. A projecting window bay in the tasting room looks back over the winery compound and toward the entry.

Commentary

Moneo compares his use of wood in the winery to the wood-trussed ceilings of the council chamber in Alvar Aalto's Säynätsalo town hall of 1952. As in that work, oak beams and ceilings seek to relate the building to vernacular forms without disguising its contemporaneousness. At the same time, Moneo associates the sandblasted concrete walls with those used by architect Victor Eusa in many of his eccentric Modernist works of the 1930s in Pamplona, the provincial capital, where the young Moneo made his first contact with the world of architecture. As these contrasting sources suggest, Moneo's design for Chivite has many of the qualities of a seasoned wine, bringing together a variety of carefully cultivated associations to create an experience of complexity and sensibility. ■

Unitized Systems Are Raising the Level and Complexity of Curtain-Wall Design

FACTORY-BUILT COMPONENTS LET ARCHITECTS ACHIEVE THE QUALITY CLIENTS NOW DEMAND

By Sara Hart

Facade engineering has always been science. Now it's art, too. As reported in this magazine last August, a building's skin is no longer a passive wrapper articulated with spandrels, mullions, and low-e glazing. Because of growing client demands and technological innovations, making a curtain wall now requires a team of collaborators—designers, engineers, and fabricators. The linear path to creation has been supplanted by integrated teamwork.

This developing paradigm of collaboration is the logical consequence of a shift away from so-called stick building to unitized systems, especially in those projects that require small margins of error and demand a high level of craftsmanship. Whereas in stick construction everything is done in the field, as raw materials are processed and assembled on-site, much of unitized construction takes place off-site. The facade is engineered as a system of components, which are fabricated in the controlled environment of a factory or workshop. The components are shipped to the site, where they are usually hoisted into place by cranes and connected to each other.

Unitized construction is particularly well suited to the demand for high thermal performance, weather tightness, and increasingly, quality detailing. Although quite different in program and execution, the success of all three projects discussed here depended on a close collaboration among all the disciplines.

Written on the wall

Burberry, the London-based haberdashery founded in 1856, is so well branded by its signature check pattern of camel, black, red, and white that the clothes need no other brand identification. In New York City, where there is an epidemic of high-end, high-concept flagship stores, the dignified purveyor wanted a competitive presence on tony 57th Street without the flashy demeanor of Niketown across the street, yet as elegant as the opalescent LVMH tower a few doors east.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 276 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *List the benefits of unitized construction systems.*
2. *Describe how unitized systems differ from stick building.*
3. *Discuss the collaboration of disciplines required of unitized construction.*

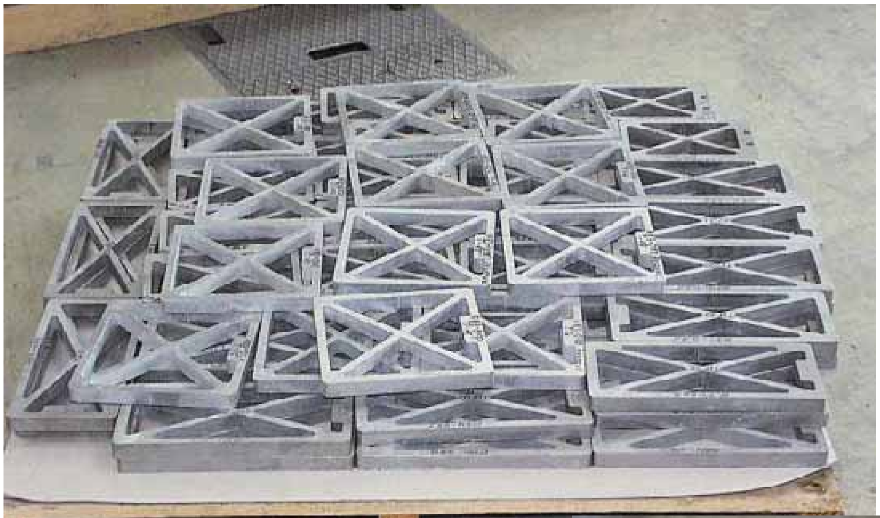
WWW For this story and more continuing education, as well as links to sources, white papers, and products, go to ***architecturalrecord.com***.

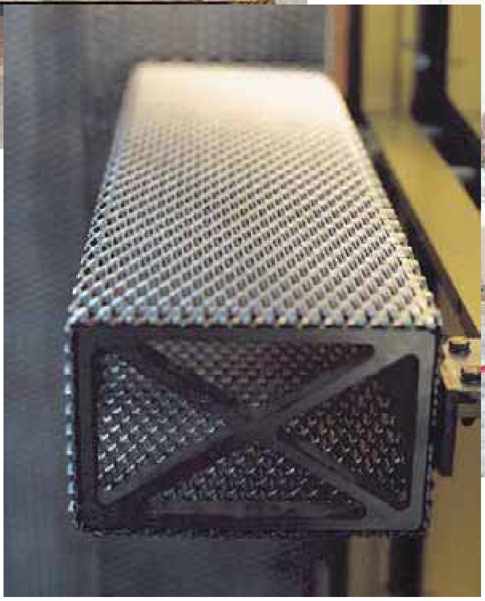
Burberry commissioned the New York office of Gensler to create an envelope to enclose the elegant interiors crafted by interior designer Randall A. Ridless [RECORD, March 2003, page 203]. The site of the new building consisted of the shells of adjoining town houses, the former location of fashion house Escada, and the current, aging and inadequate Burberry flagship.

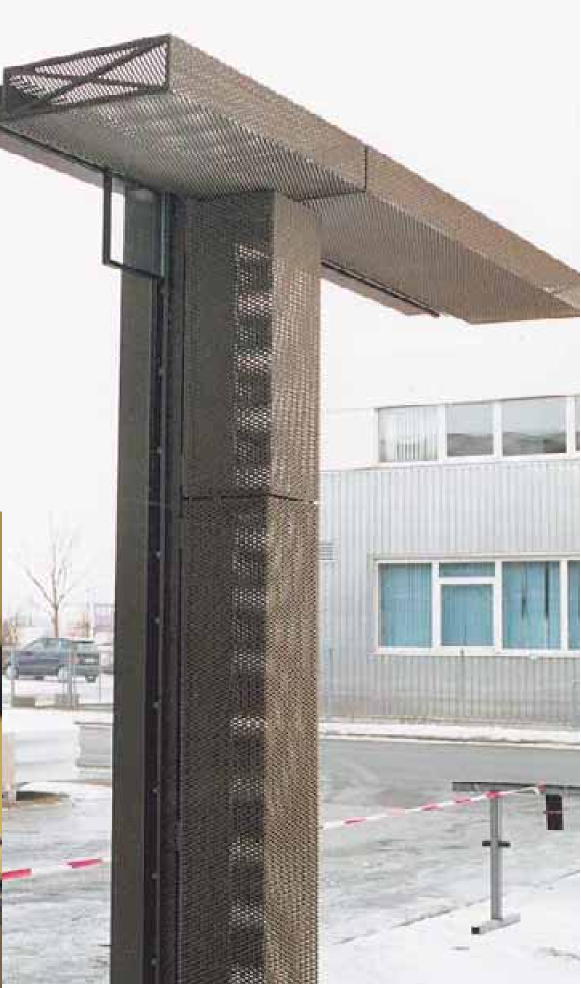
Before the "gymnastics of making two facades into one"—as the challenge was described by design principal Lance Boge, AIA—could begin, the architects had to investigate the integrity of the two independent shells, each one a structural hodgepodge, the result of decades of

A staircase behind the Burberry facade creates a zone that enlivens the showrooms for several floors, blurring the line between inside and out.

PHOTOGRAPHY: © CHUN LAI PHOTOGRAPHY







Burberry, New York City

At the Seele factory in Gersthofen, Germany, architects, engineers, and fabricators collaborated to detail the metal-mesh sections (right, far right). Eventually, the mesh was changed from steel to aluminum to reduce the weight of the wall. Seele determined that X-bracing (above) was needed to stiffen the members. The team built prototypes to study the connections.

renovations. "There were three or four different types of construction," says Belinda Watts, project manager for the envelope and structural renovation, and the problem was further complicated by the fact that the floor plates in the two structures did not line up.

The architects evaluated different ways the two buildings could be combined to meet the client's growing needs. The resulting feasibility study summarized five options, ranging from the demolition of the existing buildings and the construction of a new medium- to high-rise tower to a minor renovation that would leave the dividing party wall intact. Analysis showed that a new building would require a long construction schedule and high capital expenditures. Due to a compressed time frame, the architects ruled out razing the stores and chose to perform a radical renovation instead, which included demolishing the structural masonry party wall and replacing it with a series of steel columns and beams to support the new floors. The redundancy of services—elevators, stairwells, bathrooms, and storage—could then be eliminated, capturing more square footage for the sales floors.

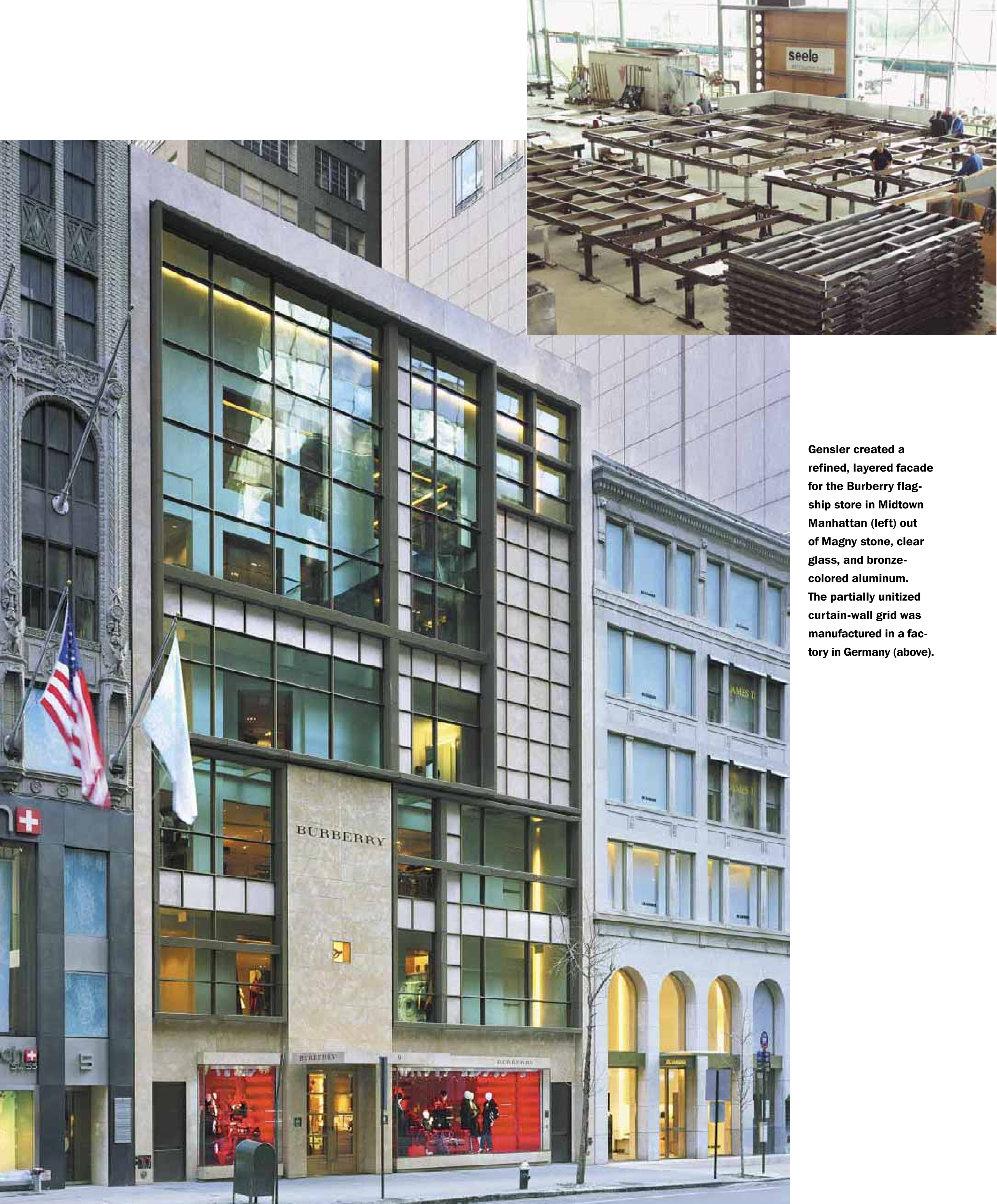
FOR BURBERRY, COMPANY IMAGE AND URBAN CONTEXT HAD TO BLEND EFFORTLESSLY.

Finally, with a plan to fuse the existing buildings into one, the architects could turn their focus onto creating a refined but visually animated facade. The complexity of this problem cannot be overstated. In typical New York infill buildings, the facade is often a generic curtain wall that repeats the rhythms of its neighbors and addresses the streetscape with varying degrees of distinction. Because of the stature of the client, Gensler's mandate was more difficult. For Burberry, company image and urban context had to blend effortlessly.

From the onset, Gensler pursued the facade design as the expression of the iconic Burberry check, while understanding that the image had to represent a modern, revitalized purveyor of luxury goods. "It's hard to take one context and reinvent it in another medium—the warp and weave of fabric to glass and steel," explains Boge. Countless iterations yielded a sophisticated, asymmetrical, and layered grid, which was eventually rendered in Magny Jaune stone, glass, and bronze-colored metal mesh. Needless to say, there was a lot riding on—and written on—this facade, so craftsmanship in its execution became a significant priority.

Gensler enlisted Dewhurst Macfarlane, a structural engineering firm headquartered in London with an office in New York, to act as the curtain-wall consultant. Its facade-design group is known for innovative solutions for glass envelopes. Their primary role was to ensure that the

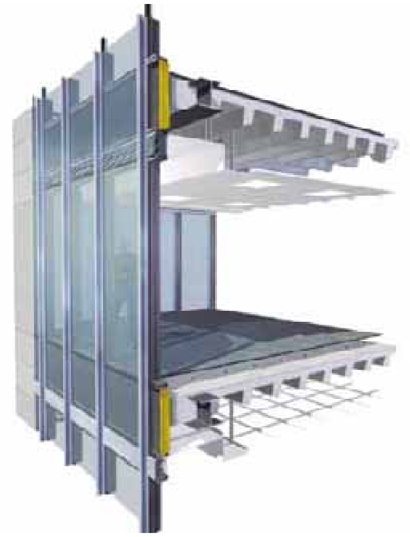
PHOTOGRAPHY: COURTESY GENSLER (THIS PAGE AND OPPOSITE, TOP); © CHUN LAI PHOTOGRAPHY (OPPOSITE, BOTTOM)

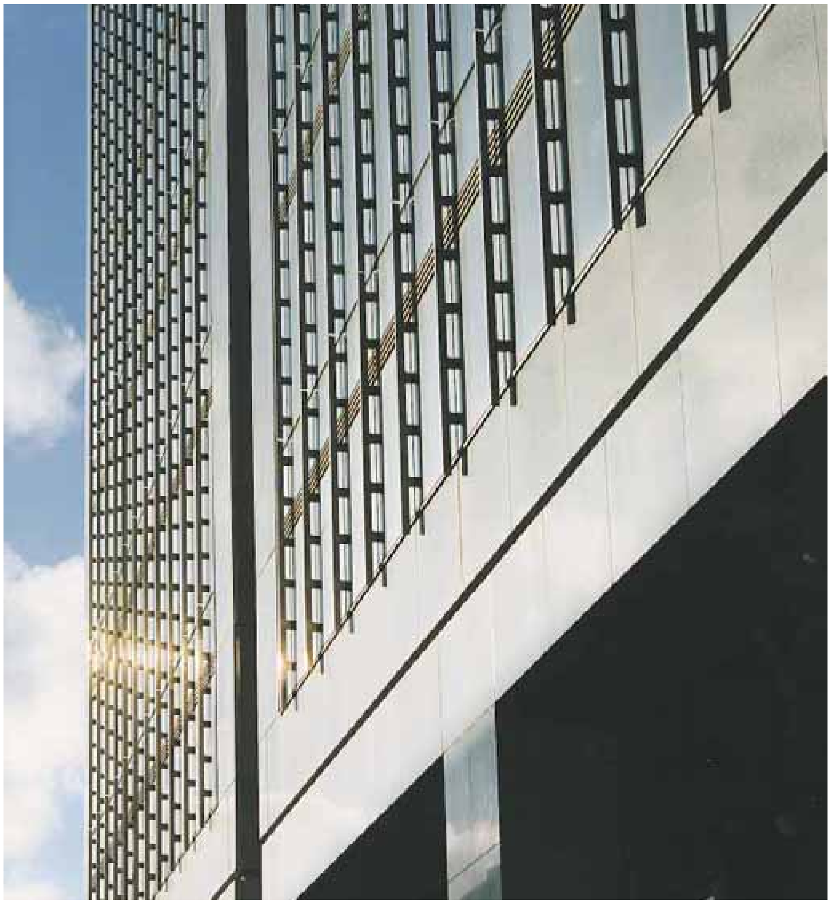

seele
BURBERRY
BURBERRY
BURBERRY

Gensler created a refined, layered facade for the Burberry flagship store in Midtown Manhattan (left) out of Magny stone, clear glass, and bronze-colored aluminum. The partially unitized curtain-wall grid was manufactured in a factory in Germany (above).

George's Quay, Dublin, Ireland

The facades consist of a unitized structural, silicone-glazed curtain-wall system, assembled off-site in modules (below left). Stainless steel and granite clad the envelope of this building. Vertical marine-grade stainless-steel fins (left and below) project through the structurally bonded glazing to create strong vertical elements on the facade.





PHOTOGRAPHY AND RENDERING: COURTESY KEANE MURPHY DUFF ARCHITECTURE

facade was fully engineered before bidding the job, in order to stress the high level of craftsmanship to the bidders. The German curtain-wall fabricator Seele GmbH won the bid with a proposal for a modified unitized system. "Other bidders' proposals were for more of a standard system approach, with room perhaps for some customization," says Carlos Espinosa, project architect. Had they gone the standard route, "We would have had a very different facade," he explains.

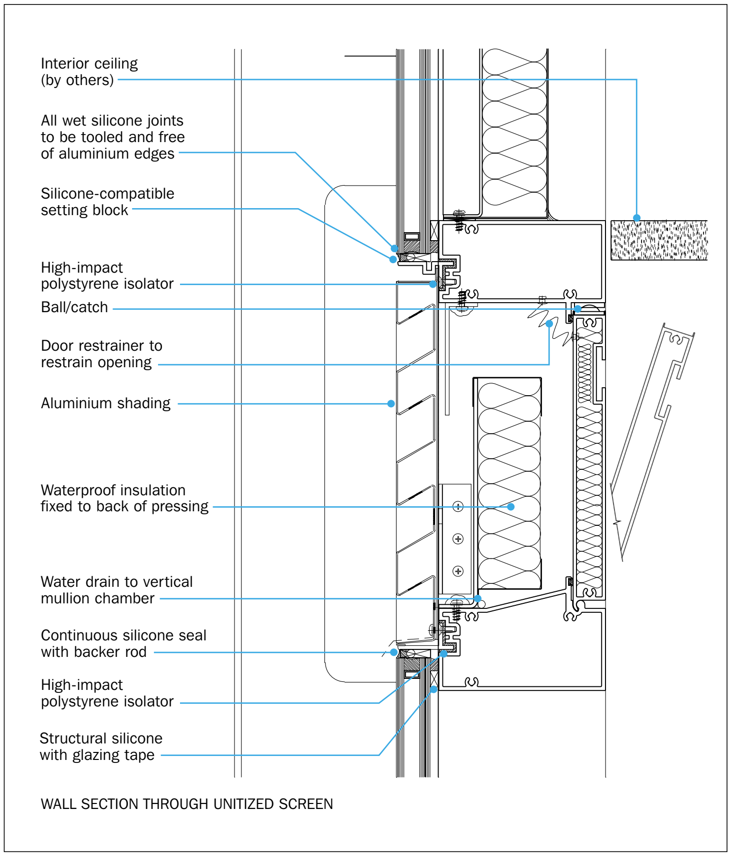
TOLERANCES WERE TIGHTER THAN NORMALLY SEEN IN U.S. CONSTRUCTION, NOT GREATER THAN ¾ INCH OVERALL.

Before the bids even went out, though, Gensler explored the limitations of the materials by making several mock-ups in a local ornamental metal shop. The team had chosen a mesh metal for the larger grid, and they wanted to see how it would bend. "If not for the thermal and structural requirements of the facade, it could have been fabricated in an ornamental metal shop, because elements were that thin and precisely detailed," explains Belinda Watts. Mock-ups and experimentation continued at Seele's plant in Gersthofen, Germany, where Seele, Dewhurst Macfarlane, and Gensler worked out the detailing together. Eventually the steel mesh became aluminum to reduce the weight, and bracing was added to make it rigid.

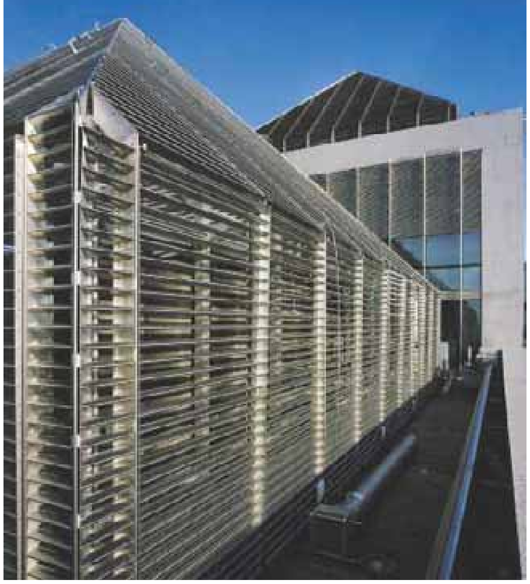
Unitized systems have another advantage. The Burberry site had almost no space for staging. When all the materials arrived, they had to be immediately installed or erected. The curtain-wall components arrived in batches that corresponded to the erection sequence of top to bottom. Tolerances were tighter than normally seen in U.S. construction, not greater than ¾ inch overall for alignments to base building and adjacent structures, but then shrunk to a few millimeters for the mullion system. The result of such finesse (matching the quality of the interiors) is a delicate scrim that evokes the iconic Burberry check without mimicking it.

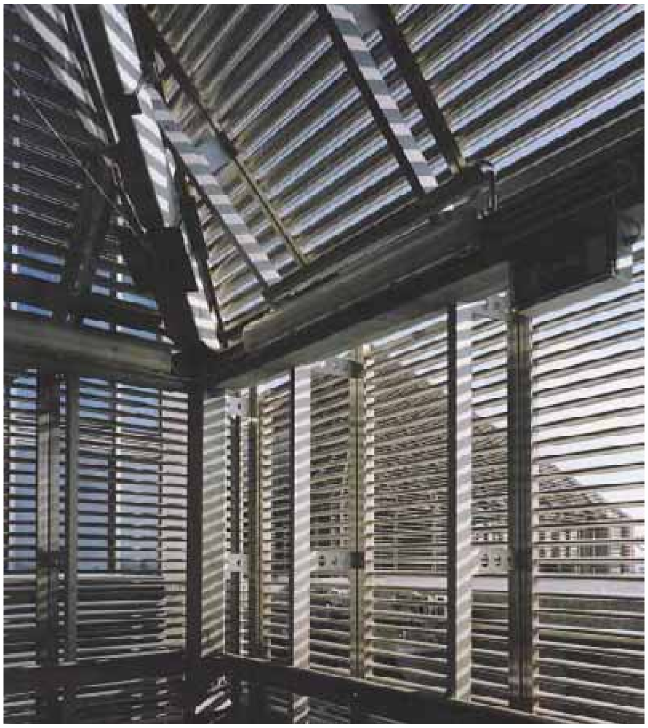
Facade on delivery

George's Quay is a commercial office development in central Dublin, Ireland, designed by Dublin-based Keane Murphy Duff Architecture for


Interior ceiling (by others)
All wet silicone joints to be tooled and free of aluminium edges
Silicone-compatible setting block
High-impact polystyrene isolator
Ball/catch
Door restrainer to restrain opening
Aluminium shading
Waterproof insulation fixed to back of pressing
Water drain to vertical mullion chamber
Continuous silicone seal with backer rod
High-impact polystyrene isolator
Structural silicone with glazing tape

WALL SECTION THROUGH UNITIZED SCREEN





George's Quay, Dublin, Ireland

Stainless-steel louvres clad seven pyramidal penthouse suites that form the roofline. The glass is coated in pure silver, which reduces heat gain and glare while giving a sheen to the building. The section (above) shows the louvers and the inward-opening hopper vents that allow natural ventilation to be controlled locally.

Cosgrave Developments. Buro Happold Facade Engineering, the international consulting engineering firm with offices worldwide, designed what it claims is the first example of a fully glazed, preassembled facade in Ireland, which required close supervision of collaborating local and international building-envelope contractors.

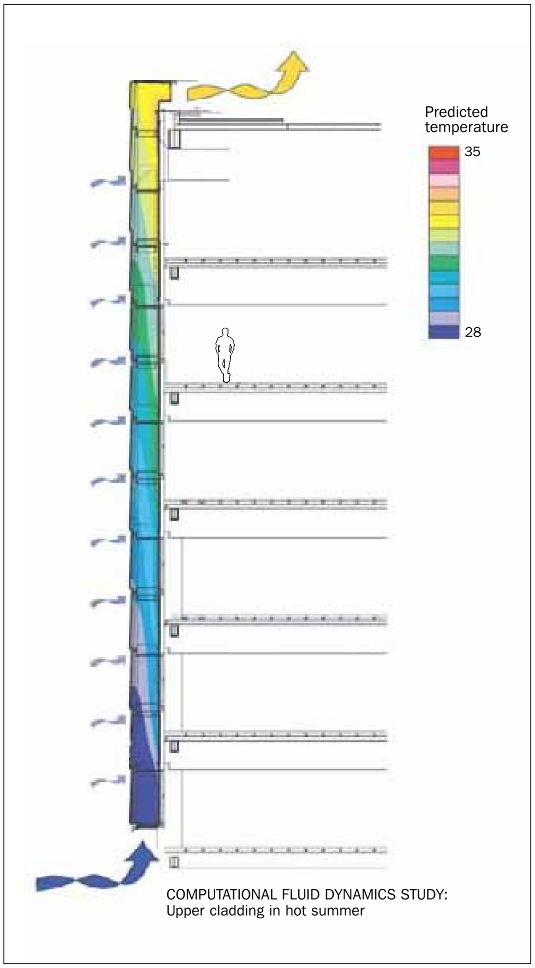
According to Russell Winser, project engineer, "preassembly ensures superior workmanship, because all fabrication is undertaken offsite in a factory-controlled environment. This type of system also allows the facade to be assembled independently of the on-site works, thereby mitigating overall building program risks. Also, there is no need for external scaffolding, as the preassembled units can be lifted into position using a floor-mounted crane."

> **PREASSEMBLY ENSURES SUPERIOR WORKMANSHIP BECAUSE FABRICATION IS UNDERTAKEN IN A CONTROLLED ENVIRONMENT.**

Unitized construction is often a global effort. Winser explains, "The aluminum framing sections were fabricated in Toronto and shipped to Dublin, while the double-glazing units were fabricated in Cork (using high-performance glass sheets—that is, coated with an invisible solar-control layer, made in Germany). Glazing units and framing members were finally assembled in Dublin and then delivered directly to site. Architectural Aluminum (AA), a Dublin-based cladding company, fabricated and installed the curtain wall." Although AA had overall responsibility for the glazing system, detailing of how individual components fit together was developed by a separate contractor, Kawneer Special Projects, based in the U.S.

The structural silicone glazing (SSG) was factory-installed. It was clear in this case that bonding double-glazed units to an inboard aluminum framework of horizontal and stainless-steel vertical mullions was best done in the clean and controllable environment of the shop. Over the past 30 years, structural sealants have earned a reputation for reliability, given that in many cases, such as during earthquakes, they have prevented glass from falling. Structural sealants also protect against other outdoor environmental factors such as sunlight, thermal changes,

PHOTOGRAPHY: COURTESY KEANE MURPHY DUFF ARCHITECTURE



COMPUTATIONAL FLUID DYNAMICS STUDY:
Upper cladding in hot summer

Plantation Place, London, England

Two Plantation Place (left) is sealed and air-conditioned. However, air-conditioning intakes are as high as possible in order to maximize the freshness of the outdoor air. CFD modeling (above) helped determine the environmental conditions throughout the year in both buildings. Blinds incorporated in the wall cavity are opened and closed by local photo sensors. Wind sensors lift the blinds in windy conditions to protect them from damage.

water, and atmospheric pollutants. “The silicone, therefore, acts structurally to hold the glazing in place, resisting positive and negative wind pressures,” explains Winser. “The vertical load of the glass, however, must always be supported by discreet supports sited along the glass unit’s bottom edge.”

Does unitized construction cost more than stick built? “Not necessarily,” is the answer from Winser. “This procurement strategy is not unusual for preassembled facade systems, as shipping costs are very competitive, and the cladding industry supply chain is fairly fragmented. It is the responsibility of the cladding contractor to organize this logistical network. In Ireland, this challenge is exacerbated by the lack of expertise with this type of preassembled facade system. Hence the partnering arrangement with a U.S. company [Kawneer].”

FACADE DESIGN PLAYED A MAJOR ROLE IN PROVIDING FLEXIBILITY WHILE REGULATING THE INTERNAL ENVIRONMENT.

The hybrid solution

One Plantation Place is a multitenant development in central London, and at over one million square feet, it is unusually large for that part of town. In contrast to the Burberry and George’s Quay projects, the client here, the British Land Company, was very specific about function and maximum flexibility, as it expected to attract up to 70 individual tenants.

The program mandated that Arup Associates, the international engineering firm’s full-service architecture subsidiary, provide the highest quality of internal air quality, with the additional requirement that the design must accommodate the particular needs of a variety of tenants. Facade design, then, played a major role in providing flexibility while regulating the internal environment, which, in addition to air quality, addressed the need for maximum daylight penetration.

Whereas the facades for Burberry and George’s Quay are best described as unitized high performance, Arup facade engineers chose an unusual strategy for Plantation Place. They created a hybrid curtain wall—or perhaps a series of independent systems—that acknowledges

PHOTOGRAPHY: COURTESY ARUP ASSOCIATES

that the environmental conditions existing at street level are different from those at the upper floors. For instance, the base of the building is sealed by a high-performance system and fully air-conditioned. It made no sense to promote natural ventilation where floor plates were too deep for fresh air to circulate through, and where the noise from the traffic would be uncomfortably loud. However, mechanical engineer Michael Beaven notes that, while he assumes the windows will remain closed, they are indeed operable, reflecting a cautious optimism that we may enjoy "silent, clean transport in the future."

Above the seventh floor, where the building begins to clear the surrounding buildings, Arup introduced a double-skin facade. Above the noise and carbon monoxide, it exploited the potential for natural ventilation and maximum daylighting, while remembering the client's instructions to give tenants options. Generally, a double-skin system consists of an external screen, a ventilated cavity, and an internal screen. Solar shading is placed in the ventilated cavity. The external and internal screens can be monolithic glass or a double-glazed unit; the depth of the cavity and the type of ventilation depend on environmental conditions, the desired envelope performance, and the overall design of the building, including systems.

DEPENDING ON THE SYSTEM, AN OPERABLE INNER SCREEN ALLOWS FOR NATURAL VENTILATION OF THE INDOOR ENVIRONMENT.

The ventilation in the cavity can be either natural (buoyancy driven), forced (mechanically driven), or mixed (both natural and forced). The direction of the airflow (upward or downward) depends on the type of ventilation and the general system design. The internal screen can be operable for cleaning and maintenance. Depending on the system design, an operable inner screen allows for natural ventilation of the indoor environment.

Two Plantation Place is a separate, but connected, 10-story building—a discrete element of the larger Plantation Place scheme—and it adheres to some of the principles developed for the site as a whole, while establishing a clearly distinct identity for itself. The building is linked through its entrance to established public routes. Its massing is derived from its prominent corner location and the architects' desire to respond to the surrounding context without losing the building's visual and functional obligation to the greater whole. The use of load-bearing masonry in the perimeter wall is an innovative approach to the energy-led requirement of minimizing glazed area in similar office buildings. In terms of environmental control, this project is much more complex than the other two. Embedded with wind and photo sensors for natural ventilation, the facades have a certain autonomy because they can operate independently from the other building systems.

These three projects show decisively that "unitized" does not mean "uniform." Each is very different from the others. Burberry's strategy was explicitly tied to the craftsmanship associated with the Burberry brand. The designs of George's Quay and Performance Place, being speculative projects, were driven by client demand for flexibility and energy conservation. In virtually all cases, when "high performance" is the demand, "unitized construction" in a controlled environment will continue to be the answer. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Unitized Systems Are Raising the Level and Complexity of Curtain-Wall Design" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 382).**
- **Fill out and submit the AIA/CES education reporting form (page 382) or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. Which is a characteristic of stick-building construction?
  a. requires small margins of error
  b. materials are assembled on-site
  c. fabricated in a factory
  d. component assemblies are shipped to the site

2. Which is a characteristic of unitized construction?
  a. raw materials are shipped to the site
  b. components are assembled on-site
  c. fabricated in a factory
  d. allows small margins of error

3. Unitized construction is well suited to which?
  a. high-performance construction
  b. collaboration among disciplines
  c. high level of craftsmanship
  d. all of the above

4. Benefits of unitized construction are all except which?
  a. do not require space for staging
  b. fabricated in a controlled environment
  c. can be constructed completely on-site
  d. can be hoisted into place and easily connected

5. Structural sealants protect glass from all except which factor?
  a. thermal changes
  b. atmospheric pollutants
  c. wind pressure
  d. vertical load

6. Which is not true of the New York Burberry curtain wall?
  a. the metal mesh evoked the Burberry checked fabric brand
  b. the original metal-mesh mock-up was in aluminum
  c. tolerances varied, but were tighter than ¾ inch
  d. the problem with aluminum for the mesh was that it needed bracing to make it rigid

7. Benefits of the unitized facade at George's Quay are all except which?
  a. preassembly ensured superior workmanship
  b. no need for external scaffolding
  c. facade assembly was independent of site conditions
  d. bonding the double-glazed units supported the vertical load

8. What is the benefit of preassembled units?
  a. they are made in a controlled environment
  b. they are made by factory workers
  c. they are made less expensively
  d. they are made faster

9. Facade designs affect the interior environment in which way?
  a. they determine the amount of daylight present
  b. they determine the design theme throughout
  c. they determine the height of each floor
  d. they contribute to the perceived air quality

10. Generally, a double-skin facade system can consist of any except which?
  a. double glazing
  b. monolithic glass
  c. solar shading
  d. all of the above

Technology: NBBJ gives Telenor a flexible, efficient, and innovative headquarters

ENERGY-SAVING PROPERTIES AND WIRELESS COMMUNICATION ARE AMONG THE STANDOUT FEATURES

By Sam Lubell

The mission statement for telecom giant Telenor's new headquarters (see project on page 222) in Fornebu, Norway, is certainly ambitious, especially for a suburban office park: "To be the most democratic, inspiring, and technologically advanced workplace in Scandinavia." Whether the building, which opened in September 2002 and houses 7,500 employees, lives up to this vision is difficult to determine. But there's no question that the 137,000-square-meter space on the site of the former Oslo International Airport pushes the limits of sustainable design and flexibility, thanks to technological innovations. "We didn't just want to build a building—we wanted to have something to represent ourselves and our way of work," said Dag Melgaard, Telenor's chief spokesman.

The building's architecture challenges business culture by not only taking people out of individual offices—a trend that has picked up steam in the past decade—but freeing them from fixed workstations altogether. Meanwhile, advanced technology helps the headquarters attain environmental objectives and obviates the notion that green architecture can't benefit a company's bottom line.

A clean, well-lighted place

Even for a country like Norway, where environmental protection is at the forefront of policy making, Telenor pushes the envelope. Because of Norway's extremely high latitude, the country's regulations regarding worker access to natural light are among the strictest in Europe: Federal law mandates workers must be no farther than 9 meters from a window, and a worker situated farther than that distance can work only five hours per day. To meet these standards, designers incorporated large windows, 1.7 to 1.8 meters high, and built internal office spaces no more than 15.5 meters wide. Like many buildings designed to maximize natural lighting, its floor plates are relatively narrow—only 15.5 meters at their widest point.

Window blinds, built snugly into the building skin (they're tucked behind glass rain screens), can be raised and lowered electronically and are programmed to respond to the sun's position. The blinds, made of either perforated aluminum or woven synthetic fabric, allow sun to penetrate the building even when closed and also protect occupants from glare. Thanks to abundant natural light, there is barely more than one lightbulb per employee, said Karl Otto Jansen, IT and electric project manager.

While Norway is by no means a tropical environment, summers still get warm, with an average high temperature of roughly 70 degrees Fahrenheit. Summer days in Oslo also have more hours of sunlight compared to lower-latitude locations. Yet the building is cooled without traditional air-conditioning; instead, designers implemented a system called "comfort cooling" that includes chilled ceilings. Cool water is circulated through ventilation ducts and in each building's cooled ceiling elements, which are metal boxes that draw up warm air in the building and then naturally send cooler air downward. The warmed water leaves the building and is recooled via a heat-exchange system that utilizes water from the nearby North Sea. A smaller amount of additional cooling comes from oil and electrical burners and sea-powered heat pumps.

Jonathan Ward, AIA, an architect at NBBJ who worked on the project, says the comfort cooling system not only uses far less energy than typical cooling systems, but also reduces maintenance costs because there are no filters to replace and no moving parts to maintain. He adds that the system is comfortable for occupants because its low air velocity minimizes the possibility of drafts. Operable windows, located around the building no more than 2.4 meters apart, allow further flexibility for ventilation.

Though Norway is known for its long, cold winters, designers eschewed energy-hogging heating techniques for lower-impact heat pumps, which are being used with increasing frequency (projects in the U.S. can earn LEED green building credits for using them). Like the com-

A long, narrow profile like that of the Telenor headquarters building is a common feature of sustainable design. If the building is oriented in the right direction, this form allows natural light to fall deep into the interior. Telenor says there is only about one lightbulb used per employee at Fornebu.

PHOTOGRAPHY: © TIM GRIFFITH; IMAGES: COURTESY NBBJ AND KNUT RAMSTAD/TELENOR VISIONARIUM TEAM

Sam Lubell is a freelance writer living in New York City who often contributes to RECORD. *His work has also appeared in* The New York Times, New York *magazine, and* The Record *of Bergen County, New Jersey.*

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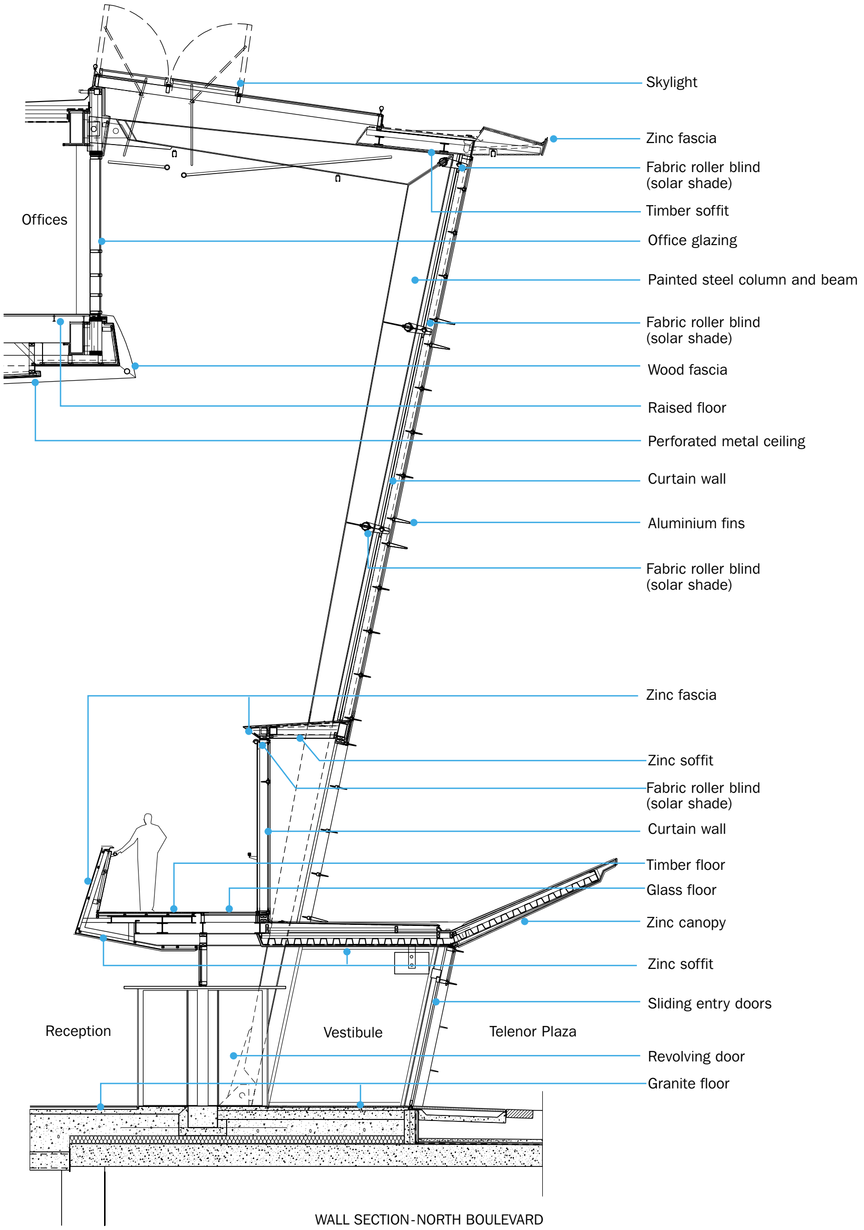
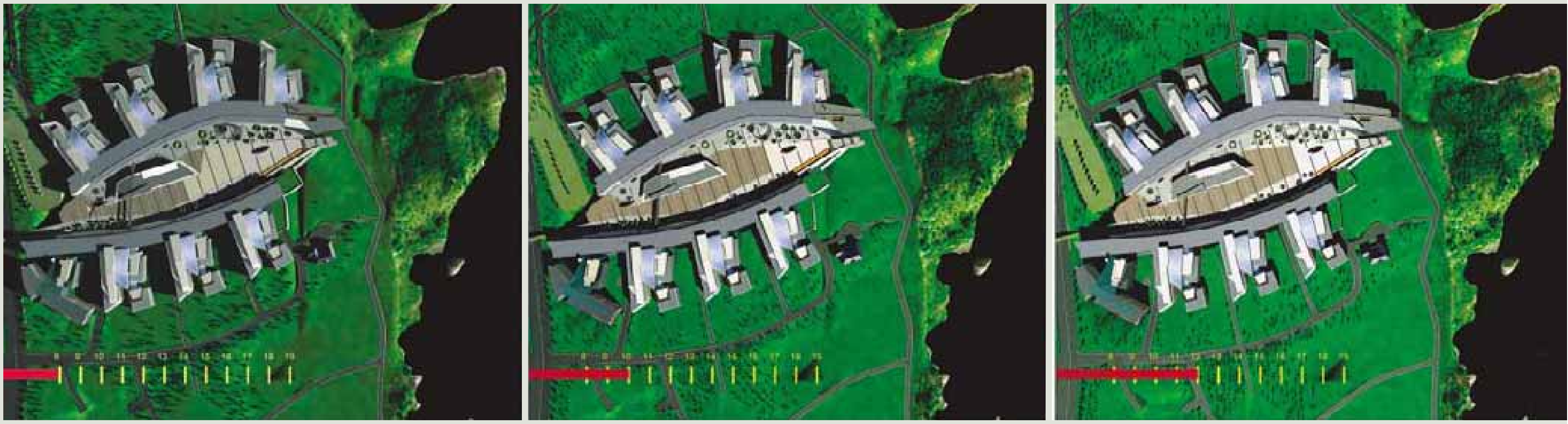
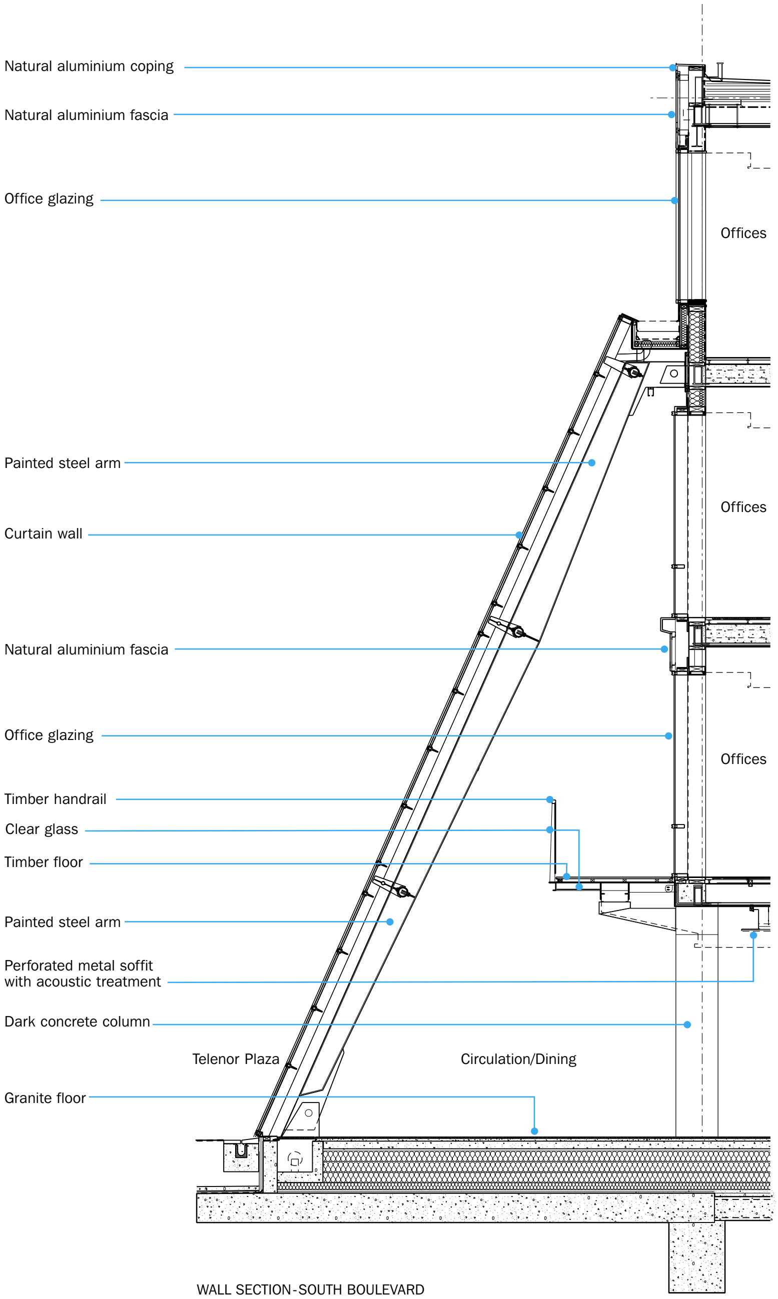

Offices
Skylight
Zinc fascia
Fabric roller blind (solar shade)
Timber soffit
Office glazing
Painted steel column and beam
Fabric roller blind (solar shade)
Wood fascia
Raised floor
Perforated metal ceiling
Curtain wall
Aluminium fins
Fabric roller blind (solar shade)
Zinc fascia
Zinc soffit
Fabric roller blind (solar shade)
Curtain wall
Timber floor
Glass floor
Zinc canopy
Zinc soffit
Sliding entry doors
Reception
Vestibule
Telenor Plaza
Revolving door
Granite floor

WALL SECTION-NORTH BOULEVARD



Because sunlight-challenged Norway has strict federal regulations regarding worker access to windows and natural light, NBBJ performed a number of daylighting studies as design progressed. Renderings of the building at different times of the day (above) helped the architects refine its form and orientation. NBBJ also worked with Telenor to create digital representations of indoor office spaces (opposite, bottom left)


Natural aluminium coping
Natural aluminium fascia
Office glazing
Offices
Painted steel arm
Curtain wall
Offices
Natural aluminium fascia
Office glazing
Offices
Timber handrail
Clear glass
Timber floor
Painted steel arm
Perforated metal soffit
with acoustic treatment
Dark concrete column
Telenor Plaza
Circulation/Dining
Granite floor

WALL SECTION-SOUTH BOULEVARD

The steep angle of the ends of these floor plates (below and opposite, top) helps to reduce glare from the sun. A fully glazed entryway (above) promotes the feeling of openness and flexibility the client wished to achieve.

so that workers could get a feel for the view corridors and sense the openness of the space. Both designers and client discussed these studies while viewing the renderings on large screens at the Visionarium, a space in the old headquarters specially built for design review. It was so successful as an aid to brainstorming and developing alternatives quickly that Telenor is building another in the new headquarters, and for other clients, as well.

Corner "offices" (above) are actually private rooms that workers can use for tasks requiring quiet or confidentiality. Below, the ground-floor cafeteria is used for both socializing and spontaneous meetings. Employees find it easier to interact with each other informally in the new building.

fort cooling system, it is powered mainly by water from the North Sea. Water is heated using electricity, and its steam is compressed to become a high-pressure vapor that eventually travels through the building's radiators. According to Erik Mordli, a HVAC specialist for Telenor, the system produces three times the energy it consumes. Also as in the cooling system, a smaller portion of heating comes from oil and electrical burners, but those are essentially backup systems for peak-use times or crises, said Henning Vellene, an engineer for Technoconsult who worked on the project.

Systems that speak the same language

Such innovative cooling and heating systems precipitated the development of a full-blown building automation system, or BAS, designed to keep the interior safe and comfortable by streamlined building operation. The building's major systems—HVAC, lighting, electricity, even conveyance—are connected together digitally by a centralized energy management system (EMS). The electronic devices that run the building's systems speak a digital language called LON (for Local Operating Network), developed by Echelon Corporation of California. LON allows these devices to share data and to be configured for maximum efficiency; it also allows various types of electronic devices to communicate with each other. The HVAC system powers down when the building, or portions of it, are unoccupied, and the lighting system is also "scenario controlled," meaning lights are adjusted automatically when the sunlight level changes or when people enter and exit. "You don't use more [energy] than you actually need [with this system]," said Jansen. Facility staff can view data such as room temperature and electricity usage from specialized workstations in the complex's operation center and make manual adjustments as needed.

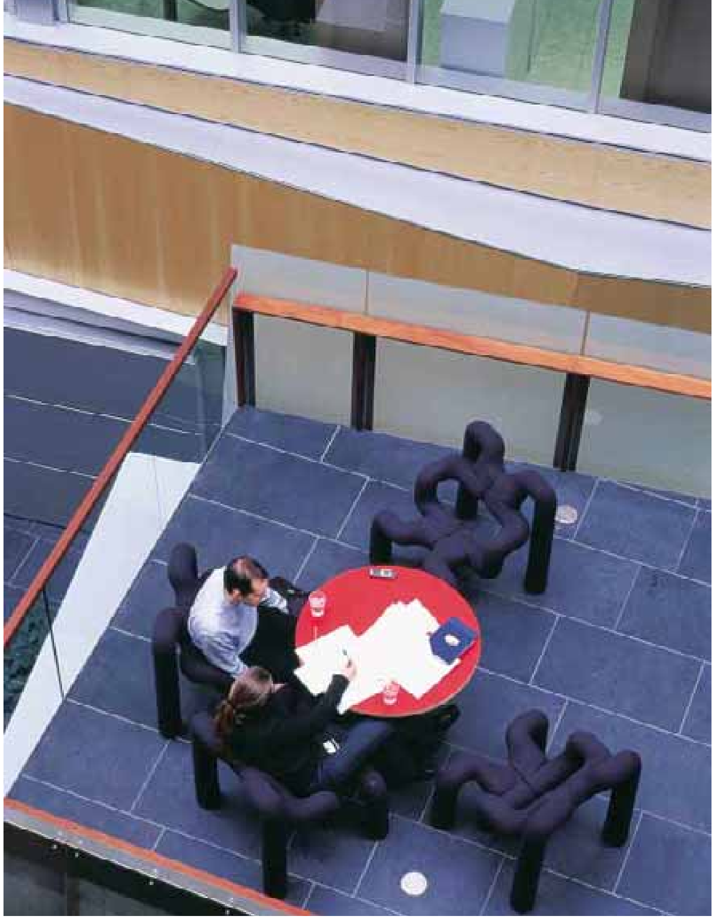
TELENOR'S NEW HEADQUARTERS WILL CONSUME ONLY HALF THE ENERGY OF ITS OLDER FACILITY.

Employees also have significant control over their immediate surroundings. They can change temperatures and lighting levels with a few keystrokes on their laptops. Sensors detect their changes on a 2.4-meter grid around the building. Yet, because the building's lighting and temperature are maintained automatically, says NBBJ's Ward, these controls are not frequently used. And each section of the building, Vellene adds, has a floor manager to ensure there are no squabbles among employees over settings.

A true building of the Information Age

Not surprisingly for a telecom company, the IT infrastructure is centered around the use of laptops and mobile phones. Laptops can access the company's network anywhere in the building, and all phone calls are made over a cellular network. Mobile phones can also receive e-mail and faxes, while laptops and handheld organizers are used to exchange virtually every type of information, whether paper-based or electronic. Even regular "snail mail" is scanned and sent to employees via e-mail.

Designers used two techniques to untether workers from fixed desks. First, groups of workstations and offices were conceived as "work modules" that could accommodate up to 30 people; then, each module was equipped for complete wireless Internet access. Engineers for Telenor and HP installed 32,000 ports for telephone and data exchange—about four ports per employee, much higher than average. Wireless antennas for mobile phones and other equipment, such as routers and servers, are also included, and the electronics require 27,000 meters of IT-related wire. Designers made some concessions to individual needs: Adjustable desks



are shared throughout the building, and private rooms are available for confidential phone calls, meetings, or work requiring privacy.

Technology even pushed the boundaries of the building when it was under construction. To better inform employees, designers, the board of directors, and others about the progress of the project, Telenor installed the "Visionarium," a 37-square-meter room in the company's former headquarters in downtown Oslo, where 3D computer models developed by NBBJ were rendered further by a Telenor design team and presented for comment and discussion. The space sits 25 people, and the viewing screen measures 5 meters by 2 meters, with a 150-degree curved screen utilizing three overlapping projectors. Digital models were crafted with software like Microstation/Triforma (the primary software used, Ward said, because it allowed the architects to cut out 2D elevations and sections from 3D models), 3D Studio Max, Division by PTC, and AutoCAD. "It's a way of having a closer relationship between the client and the architect," said Telenor's Knut Ramstad, head of the Visionarium. A 60-seat Visionarium in the new headquarters will open in May.

Feedback that was gathered during views of models in the Visionarium brought about significant design changes, from material selection for the glass curtain wall near the main entrance to circulation and employee interaction within the building. Virtual daylighting studies also helped architects better design the building for natural illumination. "We tried to make the mistakes in the models, not on the site [or in the building]," said Ramstad.

The free-flowing atmosphere promoted by unfixed work areas, pointed out Melgaard, enables frequent, informal, and efficient interactions among employees. "I've never met so many of my colleagues before," he says. "You just walk over to the people in your zone and ask for two minutes—and in two minutes you can accomplish what might [normally] take an hour."

Telenor employees often gather for impromptu meetings in common areas (top). The facade (right) is tilted to allow natural light to penetrate deep into the building. Work modules with wireless Internet access (bottom) let employees share information readily at mobile workstations.

Where to go from here?

The investment in innovation seems to have paid off so far. Telenor reports the building's energy consumption, per employee, is about half what it was before the move. (Consumption was approximately 14,400 kilowatt-hours per person per year in the old building; at Fornebu, the energy consumption is projected to be about 7,000 kilowatt-hours per person per year.) Although productivity gains attributable to the new building are hard to quantify, the company notes that workers seem happier and more efficient. Online polls show that 76 percent of employees feel more efficient when working in the new building. Only 8 to 9 percent report being unhappy with the new building, mostly because it's located farther from Oslo, and hence many employees now have a longer commute.

Since it opened last fall, more than 5,000 people, both architects and the general public, have visited Telenor, Melgaard says, many to seek ideas and inspiration. Several visiting companies have told him they are planning to replace their fixed desks with mobile offices and wireless systems. Whether the open-design office plan is right for every company is certainly open to debate, but because it has been a good fit for Telenor, the company has begun implementing this working model in its other locations around the world.

Telenor's Visionarium team, meanwhile, plans to continue building similar digital preview spaces for other Telenor branches, and even for facilities they don't own, like the Nobel Peace Prize Center in Oslo. "We believe this is the future," said Ramstad. The same, it appears, can be said for the entire Fornebu project. ■

Tech Briefs

A new product responds to a heightened sensitivity to security without resorting to the bunker mentality • University researchers make impressive structures out of plastic scraps

Sandia engineer develops protective enclosure using ordinary materials

Inevitably, the events of September 11, 2001, produced heightened sensitivity to security. Building officials are scrutinizing codes. Developers are assessing building and site vulnerability. Entrepreneurs are offering new applications for existing products; or, in the case of Keith Snyder, new products in development.

Snyder is a mechanical engineer and senior member of the technical staff at Sandia National Laboratories, where science-based technologies have been developed to support national security since 1949. He has been building and installing weapons-testing fixtures for more than 12 years. Using off-the-shelf components, he designed a machinery-enclosure system that appears to have a number of useful commercial applications.

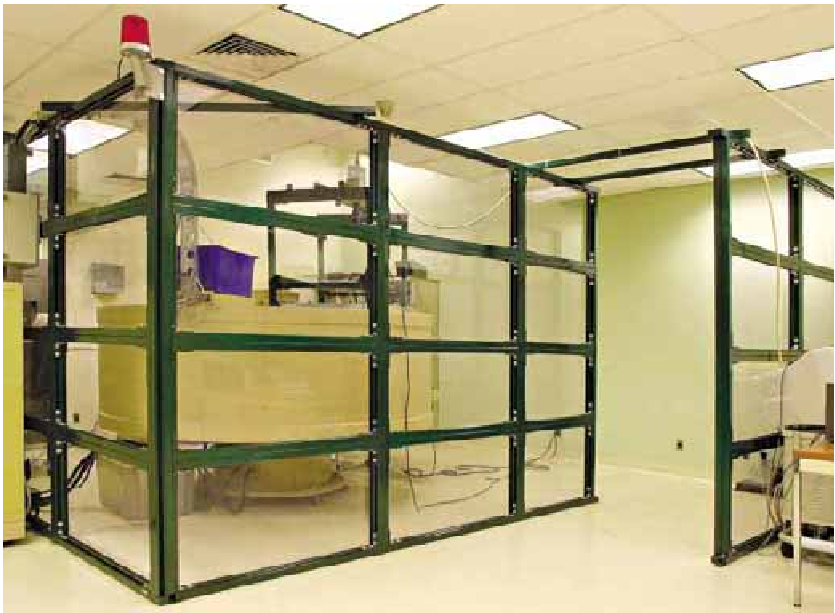
Centrifuges, key weapons testing machines, spin objects at high speeds; if something fails, the object becomes a potentially deadly projectile. As a safety measure, such machinery is typically enclosed in steel or concrete, with the attending disadvantages of heft, expense, and opacity.

For a centrifuge at the Department of Energy's (DOE) Pantex Plant in Amarillo, Texas, Snyder sought to design an enclosure that would be more efficient and economical, as well as transparent. He engineered, tested, and patented a method of using clear polycarbonate glazing in a Unistrut frame, which is blast-, projectile-, and ballistic-resistant. Polycarbonate is a widely used, highly durable plastic laminate [RECORD, December 2001, page 107]; Unistrut is an infinitely flexible structural-metal framing system. The Pantex enclosure uses standard 4-by-8-foot polycarbonate bolted into U-channels that can accept thicknesses from ⅛ inch to ¾ inch.

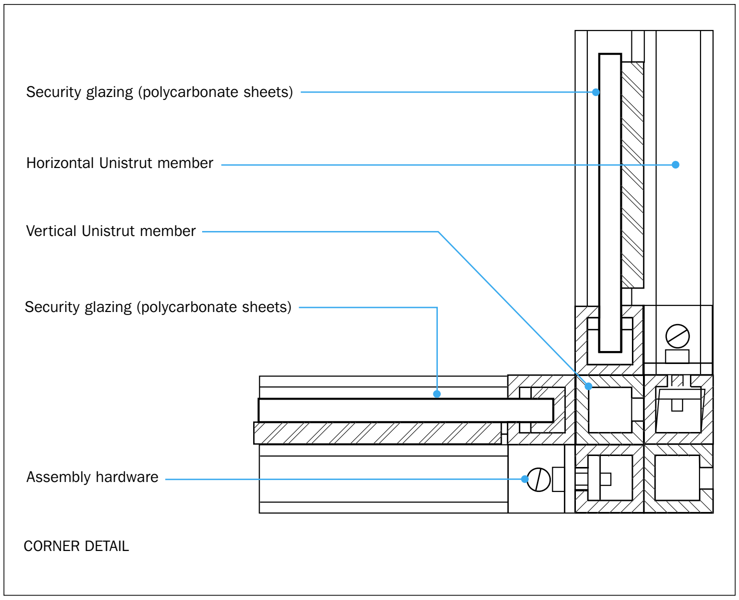
"Polycarbonate has been used as a ballistic shield in many applications. When you shoot at it, there is not a lot of movement in the surface of the material," explains Snyder, "so you can pretty much bolt it any way you like. But to protect for blasts or larger projectiles, you need more flexibility in the frame, or it will pop right out. I designed a method of assembling standard pieces to resist various kinds of impact loads."

For machinery enclosures, safety is enhanced when the operator can see that no one is inside the enclosure at start-up, or if something is behaving abnormally. The structure has a footprint of a mere 4 inches, and the Pantex enclosure was put up and wired by four people in four days at one tenth the cost of a similar concrete enclosure. Furthermore, the enclosure can be easily taken down to remove the machinery for repair, or to reconfigure or move the testing laboratory.

The security industry is the most immediately obvious user. Everything from crowd control to "pope mobile"–type protection is possible. An enclosure can be installed with bolts to existing walls or floors, or erected as a freestanding structure, and is especially suitable in circumstances where visibility is desirable. Because the system is modular and demountable, it has advantages for temporary installations for large events, such as political rallies or concerts. An enclosure or a fence can be erected at the same time and in the same amount of time as bandstands, lighting, and power systems are put up. And, using the centrifuge enclosure as an example, an assembly can withstand the impact of a 40-pound steel projectile traveling at 60 mph.



The centrifuge at the Department of Energy's Plantex Plant is protected by an enclosure made of the Unistrut structural metal framing system. The enclosure uses standard 4-by-8-foot polycarbonate bolted into U-channels.


Security glazing (polycarbonate sheets)
Horizontal Unistrut member
Vertical Unistrut member
Security glazing (polycarbonate sheets)
Assembly hardware
CORNER DETAIL

Sandia is licensing the system to Snyder for commercial development, and he has explored variations on security applications, the potential for customizing the framing system to suit specific circumstances, first-time construction, and postconstruction retrofit. Severe weather, specifically hurricanes, exhibit properties similar to those Snyder's TotalShield (as the commercial version is called) is designed to withstand. Horizontal bracing spanning the Unistrut frame helps keep the glazing in place. For buildings with fixed glazing in hurricane zones, polycarbonate in the flexible framing system can be installed as the permanent window system. The window frame can be designed to

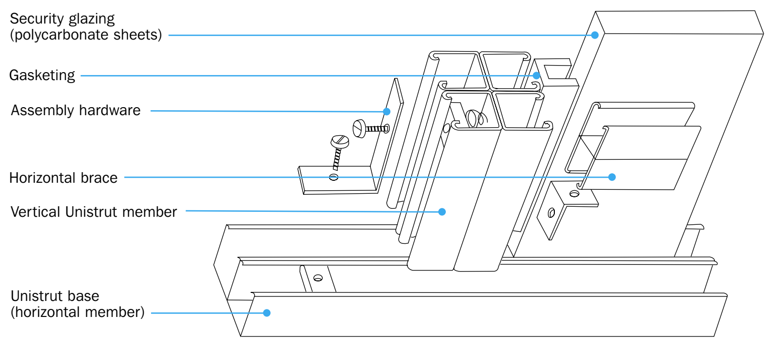
IMAGES: © SANDIA NATIONAL LABORATORIES (TOP); KEITH SNYDER/SANDIA NATIONAL LABORATORIES (BOTTOM)

(continued from previous page) accept bracing bars, which can be installed temporarily when hurricanes threaten and removed again once they pass.

Similarly, houses with operable windows can be retrofitted with frames mounted on the exterior of the building. Polycarbonate sheets can be installed in them temporarily, as needed, during hurricane season. “Then you can watch objects coming at your window instead of sitting in a dark box,” quips Snyder. The alternatives now available for window protection range from plywood covers to solid steel shutters, both of which leave the occupants with no natural light and with no way to personally monitor what is going on outside.

Other uses might be to protect outdoor equipment, backup generators, or aboveground tanks from weather or vandalism. “The assembly is made on the non-’threat’ side, so it can be locked up and no one can disassemble it from the outside,” explains Snyder. The possible uses seem numerous.

Perhaps with all the potential of polycarbonate to accept color and to be shaped, it will prompt owners and designers to think of utilitarian structures and necessary protection as worthy of some closer design attention without the bunker mentality. *Barbara Knecht*



WALL DETAIL

Modern-day Merlins turn recycled plastic into sturdy structural members

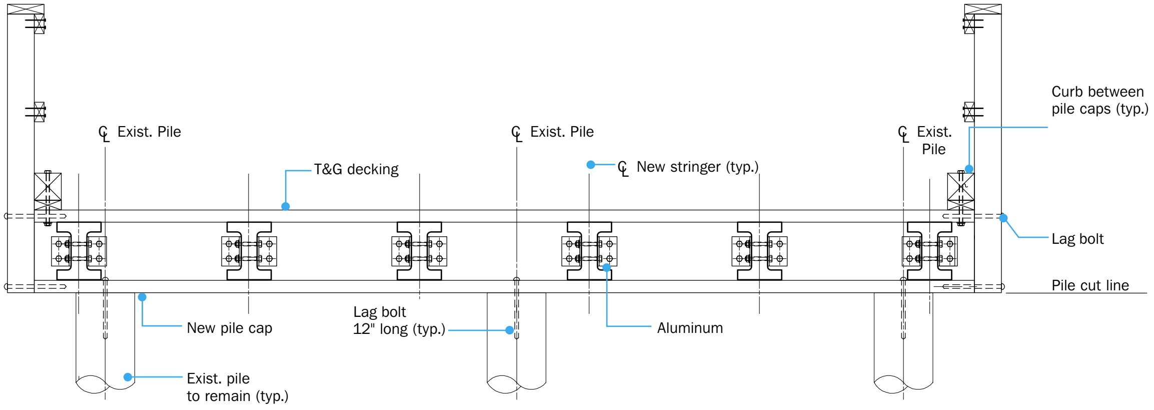
Researchers at Rutgers University building a bridge that will be strong enough to support a 25-ton truck out of plastic I beams and tongue-and-groove plastic decking developed at the Center for Advanced Materials.

The next plastic milk bottle you drive over may be supporting the road, not blowing around on top of it. Just before Thanksgiving 2002, a research team, based at Rutgers University in New Jersey, reconstructed a vehicular bridge at Wharton State Park in the New Jersey Pine Barrens out of girders, stringers, and decking made from recycled plastics. Using the existing pilings in the Mullica River, the new bridge is 15 feet wide and 56 feet long, costs $75,000, and was erected in about 10 days by a four-person team from the Rutgers’ Center for Advanced Materials through Immiscible Polymer Processing (AMIPP). Designed to support a 25-ton truck, the bridge is made from 17-inch-deep pile caps, 12-inch stringers, I-beam cross sections, and tongue-and-groove plastic decking, which makes a continuous surface with the top flange of the pile caps. All the material is a uniform gray-black color, which is easily created from recycling mixed color plastic.

Thomas J. Nosker joined the two-year-old Rutgers University Center for Plastics Recycling Research in 1987 with degrees in mechanical engineering, materials science, and polymer physics. The center’s purpose was to develop a method for recycling and reusing plastic soda bottles.

To collect materials for the project, the university sponsored a curbside collection program. “People were very responsive in giving us the bottles we asked for, but they also gave us a lot of things we didn’t ask for, namely plastic milk and detergent bottles. We made a large pile of those bottles, and it became my job to figure out what to do with them,” says Nosker.

The first thing Nosker did was figure out how to recycle this High Density Polyethelene (HDP) into a reusable material. Then he tested its properties and found that its



BRIDGE SECTION

PHOTOGRAPHY: © RUTGERS UNIVERSITY

(continued from previous page)

strength was quite good, and it was accepted by the ASTM (formerly, American Society for Testing and Materials) for low-stress applications, such as park benches and picnic tables. “Unfortunately, like plastic milk bottles that are easily crushed but very difficult to rip, it lacked stiffness,” says Nosker.

His research team set out to increase the stiffness of the material by combining it with another plastic. Not so easily accomplished, since most polymers are immiscible with one another; that is, they don’t combine molecularly. “Imagine what happens when water hits a newly waxed car: It beads up, because the two are immiscible. Immiscibility is a chemically based characteristic of most polymers,” explains Nosker. “We decided that we would figure out how to use that characteristic to our advantage.” By combining recycled polyethelene mechanically with recycled polystyrene, a polymer (plastic knives, forks, and coat hangers) that is stiff but easy to break, the resulting material was strong like polyethelene and stiff like polystyrene. It is also cheaper than molecular combination.

To force two immiscible materials to combine molecularly requires the use of a material, often another polymer, called a compatibilizer. To collect and grind up polyethelene and polystyrene costs about 20 cents per pound; a compatibilizer can add another two dollars per pound.

Commercial production of railroad ties using the material created at Rutgers began in the late 1990s. Nosker and the research team continued to develop the material and experiment with cross sections. Working with the McLaren Engineering Group in West Nyack, New York, they have built bridges using beams, trusses, and now, I beams.

“In the next 20 years, the biggest changes in our industry will be in the area of materials,” observes structural engineer Mal McLaren. “I am working with materials people to understand what they can do, and so they can understand what we need. I think we can make a hollow tube section that could be just as strong, with fewer buckling problems. It has been a two-way learning process.”

According to Nosker, using the I-beam cross section moved structural plastic into cost competition with rectangular wood members. Up to this point, it has been more expensive to build in plastic than to build in wood. Durability and a dwindling timber supply have counterbalanced the higher cost in railroad-tie replacement. “With a plastic I-beam section, replacing the Mullica River Bridge required 30,000 pounds of plastic compared to the original 50,000 to 60,000 pounds of wood,” says Nosker. “And the $75,000 cost of the new bridge is the same as the cost for the original bridge decades ago.” (Of course, the original cost included the pilings on which the new bridge was built).

Nosker is working on a fireproof coating that will make the structural members fire-resistant, but McLaren points out that the biggest enemy of structural plastic is simply heat. “At 600 degrees, you have spaghetti instead of an I beam,” he says. The best uses of recycled plastic structural members right now, according to Nosker and McClaren, include any treated-wood application. “Besides bridges and railroad ties, you can use it for telephone poles, play equipment, and docks. Treated wood is leaching poisonous chemicals into the environment; structural plastic won’t. And these materials burn as cleanly as anything can,” says Nosker. “It is especially suitable for marine applications,” adds McLaren. “It is just as strong as steel-pipe piles, and the marine borers that are destroying timber piles have no appetite for it.” *B.K.*

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Digital Architect

Tablet PCs: Good investment or just hip hardware?

By Deborah Snoonian, P.E., and Sam Lubell

Slim, sleek, and stylish, the tablet PC is the supermodel of the computing world. These portable, lightweight machines are built with rugged screens that let users draw directly onto them with a penlike device, rather than using a mouse and keyboard to enter information (although most offer attachable or built-in keyboards for those who prefer to work traditionally from time to time). Software available or under development for the tablet PC includes everything from typical productivity applications like Microsoft Office to design tools. Tablet PC makers and developers are even targeting the AEC market specifically because they know architects are comfortable working with pen in hand. Should firms take the plunge and invest in these techno-tools? And what can they expect to gain by using tablet PCs rather than traditional computers?

www For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at ***architecturalrecord.com***.

Ease of use, new ways to work

Among architects, early adopters of tablet PCs include Skidmore, Owings & Merrill (SOM), whose associates and partners were pilot users of HP's tablet PC, with Autodesk's Architectural Studio (a design tool well suited to pen-based computing that allows users to sketch 3D architectural elements and interact with architectural design information) while the tablet was still in development. Henry King, SOM's chief information officer, says the firm initially purchased just a few machines for select senior staff to test-drive. Now SOM owns 21 tablet PCs and counting. They are used by people of several ranks, from partners to associate partners to project architects, for dashing off handwritten e-mails, making presentations, sketching preliminary designs using design software like Architectural Studio, viewing Cad files on-site, and running traditional office applications.

"Once we got used to not having the keyboard, we really preferred working that way," says King. "And we find them lighter and more durable than traditional laptops, so they're very well suited for traveling." Architects, notes King, use tablet PCs on-site when they want to take compressed Cad files with them, giving them the ability to perform mark-ups straight onto the tablets. Associate partner Jeff Holmes is excited by this new process, especially because of its ability to communicate information. "You can show guys pouring foundations for the project; it gets them more excited," he says. "It's not that you couldn't have done it before, but it's more convenient. It's hard to work on a laptop standing in a puddle." Holmes also finds the tablet to be an excellent new tool for sketching 2D and 3D architectural elements on Architectural Studio. "The format's just the right thing. A pad of paper. It feels good." He adds: "I never use the mouse as a sketching tool. I just can't do it. It's either a real pen or the tablet pen." The tablet aids with his organization, allowing him to keep drawings formerly "littered around his office" digitally arranged and send them directly via e-mail. It even helps him in transit. "Now I can even get work (sketches, mail, etc.) done while I'm standing on the train commuting to my office in the morning," he says, albeit a bit ruefully.

Write Where
You Want It!

As a laptop or as a tablet PC, Acer's TravelMate offers multiple methods of input.

Compaq and HP teamed up to develop the Compaq Tablet PC TC 1000.

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The Electrovaya Scribbler runs for 8 to 16 hours without interference.

PHOTOGRAPHY: © ACER (LEFT); COMPAQ (MIDDLE); ELECTROVAYA (RIGHT)

MOST TABLET PCS ARE LIGHTER AND SMALLER IN SIZE THAN TRADITIONAL LAPTOP COMPUTERS.

SOM is ahead of the curve. Due largely to the newness of tablet PCs and the uncertain economic climate, firms have not embraced the concept en masse, nor have they rushed out to buy the machines in even modest numbers.

Software developers are working hard to change that, however, particularly for field applications where the tablet PC's lightness, presentation quality, and portability makes it a natural tool. Currently the major software developers for AEC include Autodesk, Bentley, Nemetschek, and Graphisoft. None have programs specifically dedicated to the tablet PC, but most of their programs still work on Tablet PCs, and less memory intensive programs like Architectural Studio, Bentley View, and Bentley Redline give designers effective ways to draft three-dimensional objects. Most agree that the device has the ability to change the industry. "The whole platform of communications is better," said Tony Flynn, chief marketing officer for Bentley. "From architect to engineer to contractor. There's no drop off from digital to paper. You don't lose that efficiency." Because the ability to make natural drawings is better than with a mouse, pen-based design software such as Alias Wavefront's Maya 3D modeling (used by entertainment companies like Disney, Electronic Arts, and Industrial Light & Magic) and Alias Sketchbook Pro (designed specifically for the tablet PC) could pave the way for pen-based three-dimensional architectural rendering software.

A company currently creating field-based applications is Kelar, based in Jackson Hole, Wyoming, which has developed front-end software, called Onsite, for airport facility managers that works with Autodesk's GIS applications. The software lets people in airfield and terminal operations view color-coded maps, floor plans, and exteriors of an airport to enable the development of emergency proce-

Schools find the pen mightier than the mouse

As usual, schools are leading the way, evidenced by the "Tablet PC Rapid Adoption program" at the University of Texas at Austin.

Nineteen Compaq PC 1000 model Tablet PCs were given out and incorporated into architecture courses at the university during the fall 2002 semester. The Tablet PC tested was the Compaq Tablet PC TC 1000, a "clamshell" model. Software used included Autodesk's Architectural Studio.

Architecture courses involved in the Tablet PC RAP included Introduction to Geographic Information Systems Physical Planning Studio, Urban Environmental Analysis, and Advanced Design, Europe.

School of Architecture faculty said they were interested in experimenting with Tablet PCs because they felt more natural tools like a pen and slate could foster more creativity. The tablet also allows for a more informal approach than that of a mouse and keyboard. As one designer put it, using a mouse to design is like "drawing with a bar of soap."

Because the tablets were easily transportable, and wirelessly connected via a LAN network, students were able to take their information into the field and perform mark-ups on-site. The tablet PC pen, students said, allowed a more intuitive interaction with design programs such as Photoshop and AutoDesk Architectural Studio.

One student commented that the "pen is almost perfect." Another student, who has carpal tunnel syndrome, was astonished that she could "write for hours without pain." Many were excited because the tablet's format enhanced collaboration in an informal setting.

Outside of designing, students found the tablet PCs especially helpful for note taking. Microsoft's Windows Journal allows students to write in freehand on their tablets, as if writing on a spiral notebook. They can search the text for certain topics, highlight or convert to typed text, provided they have decent handwriting (which many do not). *Sam Lubell*

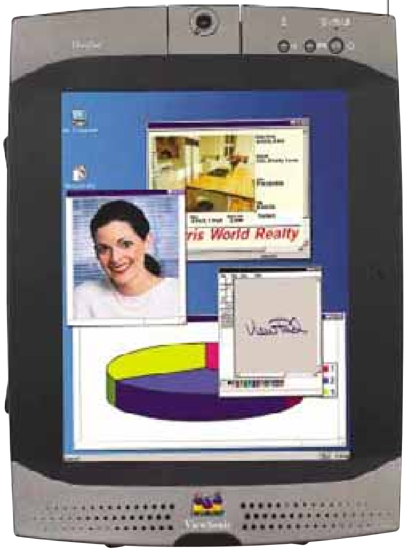
Toshiba's Portégé 3500 boasts a 12-inch screen.

PaceBlade's Tablet PC has a Tripod Hole that allows the tablet to be mounted anywhere.

Motion Computing's tablet features "grab and go" docking for quick use with a keyboard.

PHOTOGRAPHY: © TOSHIBA (LEFT); PACEBLADE (MIDDLE); MOTION COMPUTING (RIGHT)

In its carrying case, the ViewPad is camouflaged as a notebook.



ViewSonic's ViewPad 1000 comes network-ready and with a built-in digital camera.

dures and evacuation scenarios. "These maps give people a clear 'situational awareness' when they're walking around the terminal, so that they can see where trouble spots are—where crowds might get too thick or equipment might hamper an evacuation procedure," says Ed Maghboul, vice president of Kelar. He continued, "We gave the operations managers both handheld organizers and tablet PCs to do this work as they walked around the airport. The tablet PCs were much more popular because of their larger screen size and crisp presentation. People found them much easier to use." It's not difficult to imagine the various ways tablet PCs could streamline work for designers involved in construction administration by, for instance, allowing for faster data capture of changes and field or as-built conditions.

IT REMAINS TO BE SEEN IF TABLET PCS WILL MAKE THEIR MARK IN ARCHITECTS' OFFICES.

Sorting out the differences

Although tablet PCs have been introduced steadily for consumer use since fall 2002, those with long memories will recall that this is not the first attempt at promoting keyboard-free, pen-based devices. A decade ago, in 1992, Microsoft hedged into this arena with an ill-fated effort called Windows for Pen Computing, an operating system and interface designed specifically for handwriting recognition on tablet devices. Industry experts say the demise of this effort was largely due to a clunky operating system, and units that had poor battery life, fuzzy screens, and poor character recognition. Today's machines are technically superior and designed to work with Windows XP Tablet PC Edition, an enhanced version of Windows XP. Because users are much more

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familiar and comfortable with the Windows environment compared to a decade ago, learning the subtle differences in how to use the applications is not as difficult.

Tablet PC makers include Acer, HP/Compaq, Toshiba, Fujitsu, and Siemens. Compaq's use of SOM in its tablet pilot program, and its donation of 19 tablets to the University of Texas at Austin, demonstrates the company's interest in architectural usage, but no company has yet clearly positioned itself as a leader in the field. There are two different designs: the "slab," a stand-alone monitor that can connect to a keyboard and desktop mount, and the "clamshell," which has an attached keyboard but can be detached if required. For those who tool around on Macs, Apple has not released its own version of the tablet PC, and the company said it would not disclose what it had planned in the future.

Questions and answers

With the market already cluttered with portable computing products, from PDAs to laptops to cell phone/PDAs, it still remains to be seen if tablet PCs will make their mark in architects' offices. "It could just be a fad," said Al Moulton, president of Graphisoft U.S. "They haven't quite hit. I've seen these things come and go."

First, the problems have to be sorted out. "Eventually it could change the way we do business," said Brad Holtz, director of Cyon Research. But first, he says, several issues have to be fixed. Possible improvements include lower prices (tablet PCs are still almost 10 percent more expensive than laptops), lighter weight (most are two to four pounds), and increased ruggedness. "In order for this to really work, I need to be able to plop it down on a couple of two by fours with a lot of sawdust around," he says. Bentley's Flynn adds that the machines need to have longer battery life (most have only two to four hours) and improved brightness for outdoor use.

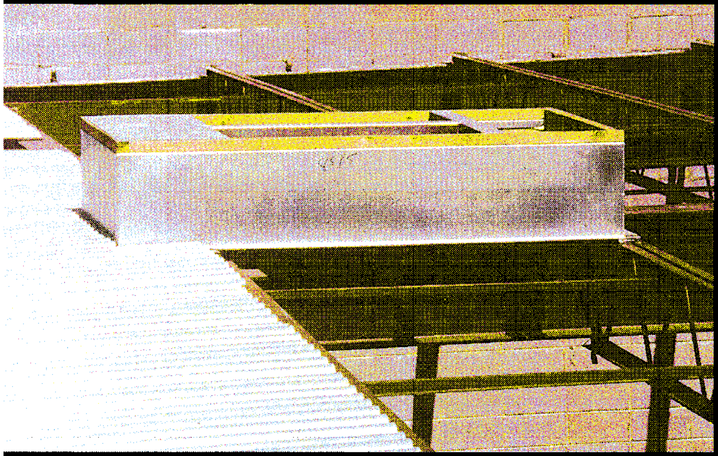
WalkAbout's Hammerhead is designed for maximum strength.

PHOTOGRAPHY: © WALKABOUT COMPUTERS

For now, the tablets' biggest strengths revolve around office connectivity, on-site reviews, systems management, and sketching. Good portability gives them a leg up on laptops, while an excellent sketching surface gives them an advantage over PDAs. (Moulton notes, "Palm pilots are meant for people with stubby little fingers. Pen tablets are made for an artist. It gives them a smooth flow to their ideas.") But tablets' limited computing power, small screen size, and less accurate control keeps them, for now, from being used to make important architectural renderings. SOM says it is not ready to venture beyond Architectural Studio because of the limited processing power and memory of the machines, which pale in comparison to most desktop computers.

"For now, drafting is still going to take place using a mouse and a keyboard," says Holmes. Architectural software specifically designed for tablet PCs remains elusive. "If the demand is there, then we'll do it," says Moulton. ■

Structural Curbs
for proper support



When a structural curb is installed and fastened to the top of bar joists, as shown, additional structure is not required to support roof-mounted equipment. Curbs can be mounted up to four feet on either side beyond bar joists or supporting members. For installation of smaller curbs between bar joists, two reinforcing angles would be required. Structural curbs may also be attached to the top of the steel deck. Holes for supply and return are cut into the deck as required. Structural curbs from RPI are the sure solution to leak-free, cost-effective roof penetrations.

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PRECAST/PRESTRESSED
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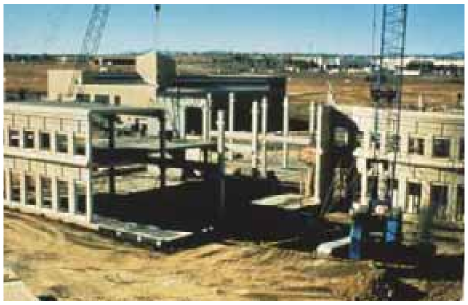
Left: Details on loadbearing panels for Aurora Municipal Justice Center, Aurora, CO.
Architect:
Skidmore Owings & Merrill



Right: Two-story window wall units support double-tees for Aurora Municipal Justice Center, Aurora, CO.

PRECAST/PRESTRESSED CONCRETE INSTITUTE PRESENTS

Integrated Solutions:
Realize the Full Potential of Architectural Precast Loadbearing Wall Panels.

Written by:
Sidney Freedman,
Architectural Director, PCI, Chicago, IL

Edited by:
Jane Martin,
Marketing, Gate Precast Company,
Monroeville, AL

The integration between architectural and structural precast concrete offers an aesthetically pleasing and structurally efficient marriage.

In building practice, the most economical application of architectural precast concrete is as loadbearing structural elements. Loadbearing units become an integral part of the structure, taking the vertical and horizontal floor and roof loads, and/or transferring horizontal loads into shear walls or service cores. Such an arrangement can be economical, not only from a structural design standpoint, but also from the viewpoint of overall construction.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Integrated Solutions: Realize the Full Potential of Architectural Precast Loadbearing Wall Panels.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 305, then follow the reporting instructions on page 384 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Understand how architectural precast concrete wall units can act as loadbearing elements in a structure*
- *Learn how connections for loadbearing wall panels affect the structural support system*
- *Identify benefits of using loadbearing architectural precast units*

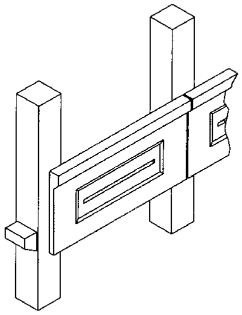
Architectural precast concrete cladding is noted for its diversity of expression, as well as its desirable thermal, acoustic and fire-resistant properties. Commonly overlooked is the fact that concrete elements normally used for cladding applications, such as solid wall panels, window wall or spandrel panels, have considerable inherent structural capability.

In the case of low- or mid-rise structures, the amount of reinforcement required to handle and erect a precast component is often more than necessary for carrying imposed loads. Thus, with relatively few modifications, many cladding panels can function as loadbearing members. For taller buildings, additional reinforcement may be necessary for the lower level panels.

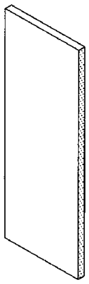
The slight increases in loadbearing wall panel cost (due to reinforcement and connection requirements) can usually be more than offset by the elimination of a separate perimeter structural frame. Depending upon the application, the loadbearing panels also may reduce or eliminate a structural core or interior shear walls, particularly in buildings with a large ratio of wall-to-floor area. The increase in interior floor space gained by eliminating columns can be substantial and, depending on the floor plan, partition layout flexibility can be enhanced.

To take maximum advantage of loadbearing units, decisions as to their functions should be made before structural design has progressed to a stage where revisions become costly.

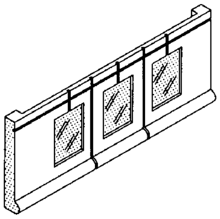
Discussed herein are the various shapes and sizes of wall panels, major design considerations, and when loadbearing or shear wall units should be the first design choice. The role of connections and shear walls is explained. In general, the design methods and techniques presented in this article apply to buildings in both seismic and non-seismic areas.



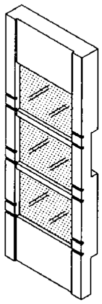
Horizontal spandrel as part of a column-wall system



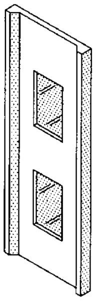
Flat, hollow-core or insulated panel



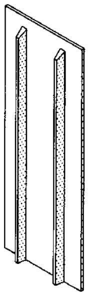
Horizontal window or mullion panel



Vertical window or mullion panel



Ribbed Panel



Double-tee panel

Shapes and Sizes

Architectural load carrying components can be provided in a variety of custom designed or standard section shapes. A wall system can be comprised of flat or curved panels, window or mullion panels, ribbed panels or a double-tee. Each type of panel will readily accommodate openings for doors and windows.

In the interest of both economy and function, precast panels should be as large as practical, while considering production efficiency, transportation and erection limitations. By making panels as large as possible, numerous economies are realized—the number of panels needed is reduced; fewer joints (waterproofing requirements), lower erection cost, and fewer connections are required.

For low-rise buildings, by spanning loadbearing panels vertically through several stories, complex connection details can be minimized, and consequently, the economic advantages of loadbearing wall panels are increased.

For high-rise buildings, it is normally more practical to work with single-story horizontal panels connected at each floor level. The elements can be more slender, simplifying the erection.

Multistory panels usually do not exceed 45 ft. in height — the maximum transportable length in many states. Panels should be designed in specific widths to suit the building's modular planning and module of floor members.

Curves are easily handled by precast concrete. On curved panels, a continuous supporting ledge cast on the inside face is preferred to provide bearing for floor/roof members and to stiffen the panels to minimize warpage.

Design Considerations

The design and structural behavior of exterior architectural precast concrete bearing walls depends on the panel shape and configuration. The designer should consider the following:

- Gravity loads and the transfer of these loads to the foundation—Vertical (gravity) loads are parallel to the plane of the wall, at an eccentricity influenced by the geometry of the wall, location of load, manufacturing and erection tolerances.
- Magnitude and distribution of lateral loads and the means for resisting these loads using shear walls and floor diaphragms. Loads in the horizontal direction may be both parallel to and perpendicular to the plane of the wall.
- Location of joints to control volume change deformations due to concrete creep, shrinkage and temperature movements; influence upon design for gravity and lateral loads, and effect upon non-structural components. Particular caution must be exercised at load path transitions, such as at the corners of a building where loadbearing and non-loadbearing panels meet or at re-entrant corners.
- Connection concepts and types required to resist the various applied loads.
- Tolerances required for the structure being designed with regard to production and erection for both precast concrete units and connections, including tolerances for interfacing different materials.
- Specific requirements during the construction stage which may control designs, such as site accessibility.

Loadbearing or shear walls should be the primary design consideration if one or more of the following conditions exist:

1. There is inherent structural capability of the units due to either their configuration or to sufficient panel thickness. The sculptural configuration of units often enables them to carry vertical loads with only a slight increase in reinforcement. For example, the precast concrete units may have ribs or projections that enable them to function as column elements for the structure. Ribs may be part of the architectural expression, or where flat exposed surfaces are required, ribs may be added to the back of panels for additional stiffness. Projections do not have to be continuous or straight, as long as no weak point is created within the units. Generally, there is little cost premium for sculptured panels when there is adequate repetition.
2. A uniform structural layout of the building facilitates distribution of lateral forces from wind or earthquake loads. Plus, this uniformity lends itself to repetitive, economic castings. Cast-in-place topping on precast concrete floor units enable the floors to act as diaphragms, distributing lateral forces, reducing both individual wall unit loads and connections.
3. The building has a central core or bay designed to absorb lateral forces and transfer them to the foundation. When the core creates a torsional irregularity, it should be supplemented by designing the perimeter panels as part of the lateral force resisting system. Because the core or bay provides the structural rigidity, panel-to-floor connections can remain relatively simple. The main advantages of precast cores versus cast-in-place cores are surface finish quality, faster construction, and greater flexibility of the precast concrete erection sequencing.

The three conditions do not preclude other situations where loadbearing panels or shear walls may be used.

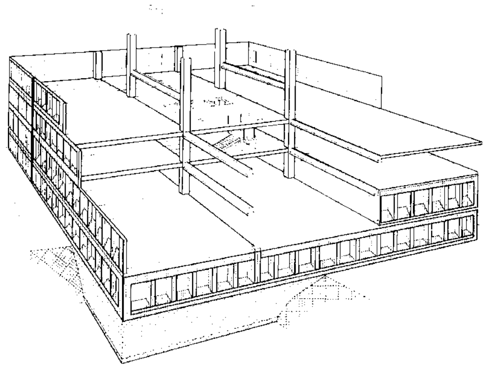
See examples of building layouts in which loadbearing panels can be used advantageously in additional online reading.

Shear Walls

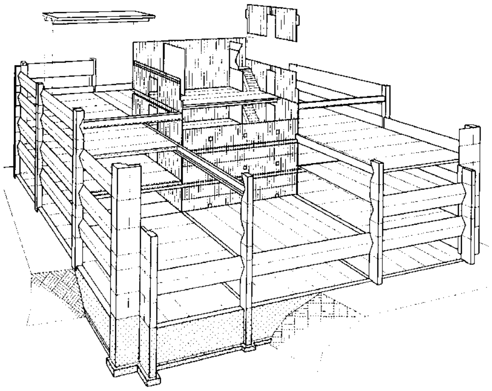
In many structures, it is economical to take advantage of the inherent strength and in-plane rigidity of exterior wall panels by designing them to serve as the part of the lateral load resisting system. Walls taking horizontal loads from the effects of wind or earthquakes are referred to as shear walls. Shear walls are used as the most common and economical lateral force resisting system and have been utilized widely in buildings up to 30 stories.

A shear wall system's effectiveness is dependent largely upon panel-to-panel connection design. A significant advantage of jointed construction is in the inherent ease of defining load paths through connections. As such, it is relatively easy to separate a precast concrete lateral force resisting system's performance from that of the vertical loadbearing frame.

Shear walls are vertical members, which transfer lateral forces, in or parallel to the plane of the wall, from superstructure to foundation. Thus, shear walls act as vertical cantilever beams. Shear walls are placed at appropriate locations within and around the building perimeter according to the architectural and functional design requirements.



Exterior shear wall system (or perimeter frame)



Interior shear wall system

Typically, a structure incorporates numerous walls, which can be used to resist lateral forces in both principal axes of the building. The portion of the total lateral force which each wall resists depends upon the walls bending and shear resistance capacity, the participation of the floor, and the characteristics of the foundation.

The importance of earthquake loads varies according to a project's geographic location. Many areas of the United States require structural analysis for potential earthquake forces in varying degrees of intensity. Concrete panels have the inherent strength to perform as shear walls with little or no additional reinforcement. It is important, however, that the connections be designed to transfer lateral forces, and also accommodate thermal movements and differential deflections (or camber).

Shear walls are economical because walls already required by the building layout [such as exterior or interior walls or walls of the elevator, stairway, mechanical shafts or cores] can become structural shear walls. Whenever possible, it is desirable to design shear walls as loadbearing panels. The increased dead load acting on the panel is an inherent advantage because it increases the panel's resistance to uplift and overturning forces created by lateral forces.

The effect of cumulative loads on connections between panels must be considered, since these loads become a significant factor in determining minimum panel dimensions. Shear walls in precast concrete buildings can be individual wall panels or wall panels which are connected together to function as a single unit. Connected panels greatly increase shear resistance capacity.

Connecting long lengths of wall panels together, however, can result in an undesirable build-up of volume change forces. Hence, it is preferable to connect only as many units as necessary to resist in-plane shear forces and the overturning moment.

In most cases, an exterior shear wall (or perimeter frame) system provides more efficient and flexible floor plans than does an interior shear wall system because it eliminates the need for a structural core.

Furthermore, exterior shear walls do not affect the interior traffic flow or sight lines. The exterior walls provide the vertical strength and horizontal connections to allow the entire wall to function as a single unit to mobilize dead load overturning resistance.

In an interior shear wall system, the lateral forces are not transferred directly to the foundation. Instead, the wall panels distribute the lateral forces to floor diaphragms, which, in turn, transfer them to a structural core or to the interior shear walls. Frequently, the shear wall panels are connected vertically and at the corners to form a structural tube that cantilevers from the foundation, creating a stronger element than its individual parts.

See information about architectural precast concrete units serving as forms for cast-in-place concrete in additional online reading.

Connections

Connections for loadbearing wall panels are an essential part of the structural support system. The stability of the structure depends upon them. It is desirable to design loadbearing precast concrete structures with connections, which allow lateral movement and rotation, and to design the structure to achieve lateral stability through the use of floor and roof diaphragms and shear walls.

Connection methods include bolting, welding, post-tensioning, grouting, or a combination of these techniques. The floor system may or may not have a structural topping. Often, loadbearing walls have horizontal and/or vertical joints across which forces must be transferred.

Connections must comply with local codes whose provisions generally vary across North America. Connections may be subject to functional requirements such as recessing for flush floors and/or exposed ceilings.

Horizontal joints in loadbearing wall construction usually occur at floor levels and at the transition to foundation or transfer beams. These joints may connect floors and walls or wall units only. The principal forces to be transferred are vertical and horizontal loads from panels above and from the diaphragm action of floor slabs.

Horizontal joint and connection details of exterior bearing walls are especially critical, because the floor elements usually are connected at this elevation, and since a waterproofing detail must be incorporated. Vertical joints may be designed so that the adjacent wall panels form one structural unit (coupled), or act independently. In addition to the vertical shear force transfer due to lateral loads, vertical joints also may be subject to shear forces induced by differential loads upon adjacent panels.

The stability of the structure during construction must be considered when planning erection procedures. Therefore, temporary guying and/or bracing must be provided until final structural stability is achieved in the completed structure. This bracing design is the responsibility of the precast concrete erector and should be shown on a bracing plan prepared by the erector.

Wall-to-Foundation Connections

Wall-to-foundation connections are used to tie loadbearing walls to the foundation. Any connection joining a wall panel to a foundation wall or a continuous

The architectural precast walls of 198 Inverness Drive West, Englewood, CO are the perimeter structural-gravity support for the floors and roof. Architect: POUW & Associates, Inc.

footing should provide a means of leveling and aligning the panel. The attachment method also should be capable of accepting the base shear in any direction. In cases where an interior core carries lateral loads, this may be accomplished with a simple welded connection.

Slab-to-Wall Connections

Slab-to-wall connections are made to join precast or cast-in-place concrete floor or roof members to precast concrete walls. Connections joining the slabs and walls may require load transfer or bearing, diaphragm action, and moment resistance.

Blockouts in wall panels can also be used to support floor members. Such pockets in wall panels or spandrels greatly decrease torsion stresses, and also minimize twist and eccentricity during erection.

When the slab functions as a diaphragm, the connections must transmit diaphragm shear and chord forces to a structural core, thus reducing the load on individual exterior wall or spandrel units and their connections. In those instances, simple welded connections can be employed to join panels.

Wall-to-Wall Connections

Wall-to-wall connections are primarily intended to position and secure the walls, although with proper design and construction, they are capable of carrying lateral loads from shear wall or frame action as well. The two locations of wall-to-wall connections are horizontal joints (usually in combination with floor construction) and vertical joints.

The most practical connection is one that allows realistic tolerances and ensures transfer of load between panels.

See examples of wall-to-foundations, slab-to-wall and wall-to-wall connections in additional online reading.

Concluding Remarks

Architectural precast concrete's full potential as loadbearing walls can be realized when the entire design or design/build team architect, engineer of record, mechanical engineer, contractor, and precaster has the opportunity to develop a project jointly starting at the project's preliminary design stage. Finish types, shapes, repetitive use of efficient and economical precast concrete modules, joint locations, access or site restriction, erection procedures and sequencing, all become important considerations for a project's successful completion. Properly implemented, an early and continuing dialogue between the designers and precaster will ensure maximum product quality and appearance at a minimum installed construction cost. ■

Two enormous portals that can be read from a distant highway mark the Merrill Lynch corporate office entrance in Englewood, CO. Architectural precast structural units with a finish mimicking Colorado red sandstone contrast with buff colored accents.
Architect: Thompson, Ventulett, Stainback & Associates.

pci.org Click For More...

As part of this CES learning activity, you are required to read additional material online. The additional reading will include diagrams on connections and application examples for loadbearing concrete wall panels. To access the material online, go to **www.pci.org/pdf/journal/loadbearing_panels.pdf**. Read pages 103–111 of the PCI Journal article provided.

Loadbearing architectural precast units design benefits:

- **Speed of Construction:** Prefabrication combined with speed of erection saves valuable overall construction time. Production of precast concrete components and site preparation can proceed simultaneously. On-site labor cost is minimized, and erection is possible in all kinds of weather. Construction is much faster with a fully integrated structure and skin system where loadbearing wall panels provide both structural support and architectural finish. Rapid enclosure allows earlier access by finishing trades. Faster completion reduces interim financing costs and results in earlier cash flows.
- **Eliminates Trades:** Loadbearing wall panels become part of the structural framing. They form the supporting structure for floors and roof at the building perimeter. This generates interior space free of perimeter columns and interior bearing walls, providing maximum floor plan layout flexibility. When a loadbearing wall panel building is erected, the architect and owner receive single-source responsibility for the building shell. This reduces the number of subcontractors and minimizes trade coordination.
- **Economical, Attractive Structure:** Precast concrete loadbearing wall units, comprising structural-aesthetic functional features, provide the opportunity to construct an economical, attractive building. Such structures contribute significantly to the development of contemporary architectural philosophy specifically, a system in which the walls are actually doing the structural work they appear to be doing.
- **Elimination of Steel Results in Savings**: Elimination of separate structural frames from exterior walls results in savings far exceeding the minimal additional costs of increased reinforcement and connections required for loadbearing units. This savings is most apparent in buildings with a large ratio of wall-to-floor area.
- **High Quality Facade in All Shapes, Colors and Textures:** Precast concrete, manufactured in factory-controlled conditions assures the highest quality possible, thus ensuring a uniformly high quality facade in the desired shapes, colors, and textures. Greatest economy is achieved by using an integral architectural finish for both exterior and interior faces. Integral finishes not only result in a savings of material and labor, but also reduces the overall thickness of the exterior wall. This permits maximum interior space utilization. Precast concrete panels resist weather and corrosion, requiring little or no maintenance. Their aesthetic versatility is virtually unmatched by any other material.
- **Decreases Trade Overlap:** Panels can be designed as receptacles and distributors for electrical, mechanical, plumbing and HVAC sub-systems, thereby decreasing trade overlap problems and eliminating the need for a separate wall cavity.
- **Reduces Heating and Cooling Costs:** Loadbearing window wall panels can inherently form deeply recessed window frames to provide a high degree of sun shading. This can minimize air-conditioning system costs by reducing thermal load. Also, the thermal mass of concrete and the possibility of incorporating insulation into a sandwich wall panel contribute to reducing heating and cooling costs.
- **Design Flexibility:** Design flexibility for the precast exterior allows unique expressions while interior framing can be simple and standard. This provides an economical solution for structures with varying loading, fire and space planning requirements. Precast concrete's aesthetic flexibility simplifies changes in plane, relief, color, and texture. Wall panels can be custom designed in desired shapes and sizes or may be selected from a variety of standard sections depending on the building's intended use and budget. Final results are limited only by the designer's imagination.
- **Effective in Renovation Projects:** Wall panels can be used effectively to renovate and rehabilitate old deteriorated structures. These panels can be used not only in all-precast structures but also in structural steel framed structures and cast-in-place concrete structures.

The all-precast structural systems for Starz Encore Headquarters, Englewood, CO includes double tees, inverted tee beams, shear walls and loadbearing precast walls. The system is a common approach to design in the Rocky Mountain region. Architect: Barber Architecture.

A bold sculptural form centering on a circular glass-topped atrium defines the Shepard's/ McGraw-Hill World Headquarters in Colorado Springs, CO. The all-precast system offered the lowest cost and fastest construction schedule of several examined approaches. Architect: Barber Architecture.

LEARNING OBJECTIVES

- Understand how architectural precast concrete wall units can act as loadbearing elements in a structure
- Learn how connections for loadbearing wall panels affect the structural support system
- Identify benefits of using loadbearing architectural precast units

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 238. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

Q: 1. Complex connection details can be minimized by:
A: a. Spanning loadbearing panels vertically through several stories
b. Using single-story horizontal panels

Q: 2. Due to the maximum transportable length in many states, multistory panels usually do not exceed ___ ft. in height:
A: a. 25
b. 35
c. 45

Q: 3. Which of the following is NOT a condition when loadbearing or shear walls should be the primary design consideration?
A: a. There is inherent structural capability of the units due to either their configuration or to sufficient panel thickness.
b. A uniform structural layout of the building facilitates distribution of lateral forces from wind or earthquake loads.
c. The building has irregular floor plan in region of moderate or high seismic risk.
d. The building has a central core or bay designed to absorb lateral forces and transfer them to the foundation.

Q: 4. The main advantages of precast cores versus cast-in-place cores are surface finish quality, greater flexibility of the precast concrete erection sequencing, and:
A: a. Lower Cost
b. Faster Construction

Q: 5. A shear wall system's effectiveness is dependent largely upon panel-to-panel connection design.
A: a. True
b. False

Q: 6. Which provides more efficient and flexible floor plans:
A: a. An exterior shear wall
B. An interior shear wall

Q: 7. Which connection is used to tie precast or cast-in-place concrete floor or roof members to precast concrete walls.
A: a. Wall-to-Foundation
b. Slab-to-Wall
c. Wall-to-Wall

Q: 8. Loadbearing panels size should consider the building bay size, repetition of units and floor member widths.
A: a. True
b. False

Q: 9. Savings due to elimination of separate structural frame is greatest with:
A: a. Small ratio of wall-to-floor area
b. Large ratio of wall-to-floor area
c. Low-or mid-rise structures

Q: 10. The loadbearing aspect limits the possible sizes, shapes and finishes of the panels and can not be used with strip and punched windows.
A: a. True
b. False

About PCI

The Precast/Prestressed Concrete Institute is a unique organization of producers, suppliers and professionals. PCI is dedicated to fostering greater understanding of the design and use of precast and prestressed concrete. It also encourages and recognizes excellence in the manufacture and use of these materials. Our professional members guide the Institute's efforts in product innovation, new technology adaptation, design methods development, training and quality assurance. Since its inception in 1954, PCI has been a dynamic force in the steady growth, and the current position of this expanding industry.

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Lighting

This month, Lightfair arrives in Manhattan, where recent projects display deft designs inside and out

BRIEFS

The National Lighting Bureau, a not-for-profit lighting-education organization sponsored by professional societies, trade associations, manufacturers, utilities, and federal agencies, has elected James M. Yorgey, technical applications manager at Lutron Electronics, as its chair. For more bureau information, go to www.nlb.org. In ***Architecture of the Night: The Illuminated Building*** (Munich: Prestel, 2003, 200 pages, $65), Dietrich Neumann surveys how architects, engineers, and lighting designers have created the nighttime illuminated appearance of major buildings during the past century. Selected biographies of lighting luminaries chart the emergence of the profession.

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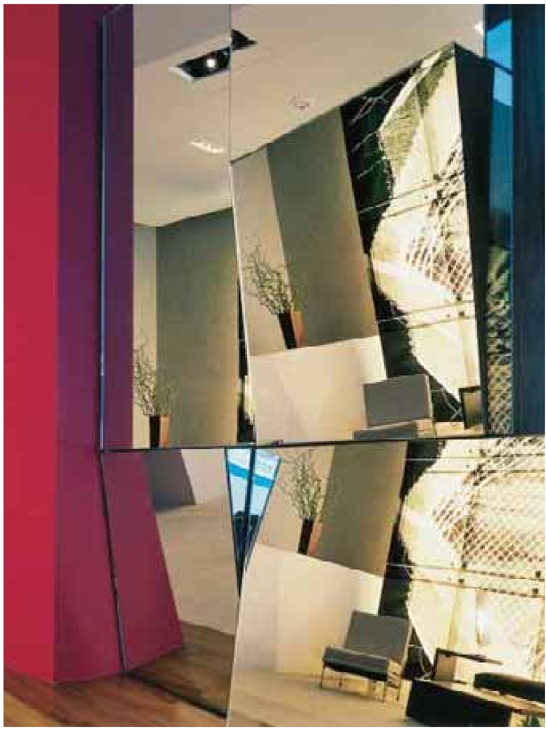
Lightfair International, the annual trade show and exhibition for architectural lighting professionals, takes place May 3 through 8 at the Jakob K. Javitz Center in New York City. Visitors to the show can view innovations in illumination, from organic light-emitting diodes to silicon-microchip-powered luminaires, by 500 exhibitors. With courses ranging from basic to master's level, sessions and workshops offer more than 105 hours of education and discussion.

As a complement to the New York City show, this month we feature projects around town that demonstrate winning strategies in architectural lighting (plus one project by a Manhattan-based designer farther afield in Spain). At the Atlas, a new apartment tower in Midtown, Focus Lighting collaborated with architect Stephen Alton to create illumination that fosters an artful sense of arrival. Projected images and layered patterns of light serve as set pieces, while canted ceiling planes and Cubist-like mirrored walls are foils for accent illumination (photo, right).



PHOTOGRAPHY: © EDUARD HUEBER/ARCHIPHOTO

For the offices of the Fallon advertising agency, the architecture of the 1913 Woolworth Building inspired MAP Architecture + Design and Goldstick Lighting Design to embrace abstract neo-Gothic motifs for lighting and interior details. The spare spaces employ T8 fluorescents, illuminated display cases, and projected colored light for an office landscape in step with the creative teams at work.

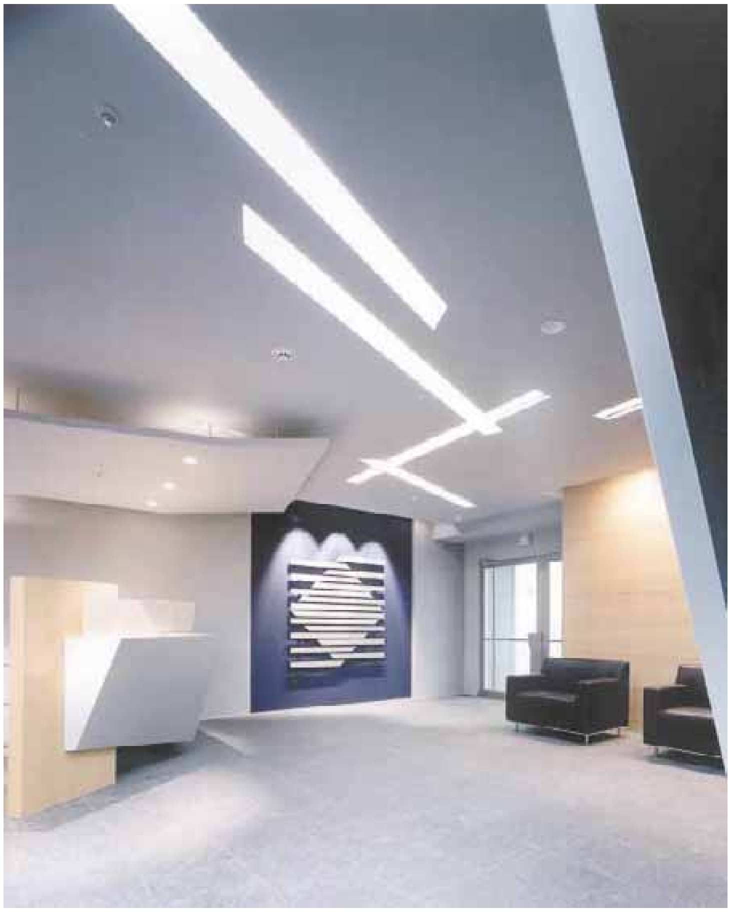
Long a landmark overlooking Madison Square Park, the MetLife Tower was enhanced by new exterior illumination by Horton Lees Brogden Lighting Design (HLB). The custom luminaires, in fact, were developed by two manufacturers brought together by Stephen Lees to forge a new type of exterior fixture to suit the site.

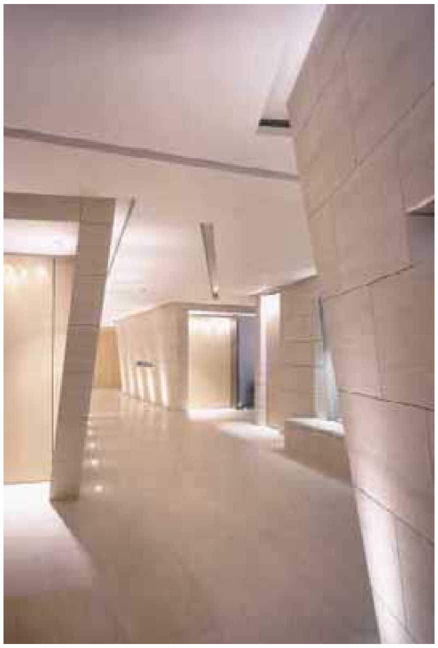
Complementing its architectural lighting practice, HLB last winter launched eLumit (www.eLumit.com), the first comprehensive Web search engine designed by lighting designers for lighting specifiers. The free-access site includes links to manufacturers' specifications, photometrics, and application guides. A secure work-space area allows users to track project specs, schedules, and budgets. It's a helpful resource, with many of the players at Lightfair already onboard. *William Weathersby, Jr.*

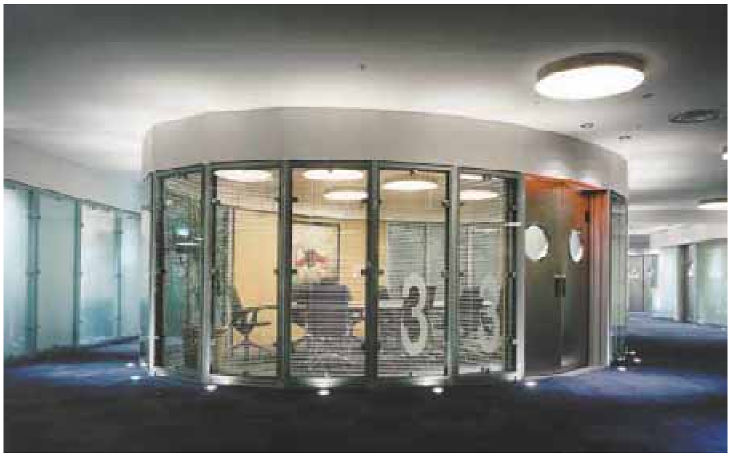
Creative Uses

Architects working in Japan shape light and space • A fanciful chandelier enlivens a public venue in Spain • REID reflects on office lighting techniques at its new London headquarters

Dasic Architects designs three light-filled offices for Western companies in Tokyo







Clockwise from above: Lighting plays a key role in defining the offices of Deutsche Bank, Munich Re, and UBS Warburg in Tokyo.

PHOTOGRAPHY: © HIRO SAKAGUCHI/A TO Z (THIS PAGE), EXCEPT NAKASA & PARTNERS (TOP RIGHT)

"Traditional Japanese architecture and style are a natural match for my own design aesthetic," says Tokyo-based architect George Dasic. "Minimalist, simplicity with order, and subtle details articulated in materials and lighting."

Born in Belgrade, in the former Yugoslavia, and educated at the Architectural Association in London, Dasic began his career working on large office projects in the U.K. Based in Japan since 1991, the architect first worked with local architects for Japanese corporate clients. When the country's economic bubble burst, he established his own firm in 1994, designing offices primarily for Western financial institutions in a time of mergers and expansions in Japan.

"Financial institutions, with their trading floors and massive communications and equipment requirements, provide the perfect ground for developing an architectural language built around negotiating complex layers created by organizational hierarchies," Dasic says. "Often I make the analogy between the urban fabric of Tokyo and the trading floors we design, the ultimate exercise in establishing order out of chaos."

At the offices of Deutsche Bank in central Tokyo, canted corridor walls of stone are juxtaposed with transparent glass panels to generate a feeling of what Dasic calls "suspended motion." For lighting, Dasic collaborated with designer Bob Venning of Arup in London. In the reception area, a backlit ceiling grid gives the feeling of space "exploding upward," Dasic says. A company logo and triptych are illuminated by 50-watt, low-voltage spotlights, while color-changing fiber-optics backlight a waterfall. Along corridors, floor-recessed uplights emphasize the texture of the stone walls. Behind frosted-glass panels, dimmable fluorescents specified at 3,000K and 4,200K accommodate varied effects. Isamu Noguchi's Akari lamps serve as grace notes. Office walls are grazed by low-voltage downlights, with some areas backlit by fluorescent wall washers. On the two trading floors, custom circular luminaires are set within metal ceiling tiles that accommodate mechanical systems.

For Munich Re, space is split between general office use and areas for hosting seminars and clients. Lighting complements an interplay of geometrical forms detailed in concrete, stucco, granite, beech, and aluminum. Sliding doors reminiscent of shoji screens divide space, while slashes of diffused fluorescent light along the ceiling lead guests and employees through the reception area and corridors. Custom pendants, called "origami lights," feature fluorescent sources encased in folded panels of rice paper sandwiched between glass.

At UBS Warburg, a procession of glass-box enclosures glows along corridors. Custom pendants of coated glass and stainless steel combine fluorescent and incandescent sources. Their circular shapes echo portholelike windows that pierce doors. Low-voltage fixtures create a "welcome mat" in front of each room. *William Weathersby, Jr.*

Creative Uses

A school of floating light spheres casts a golden glow on Valencia's underwater world

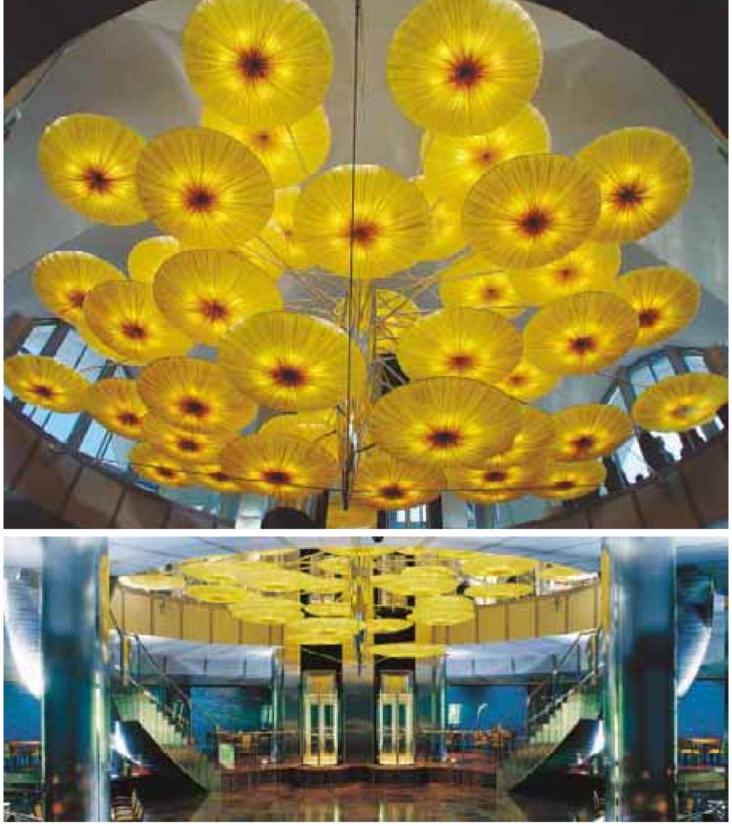
Santiago Calatrava's City of Arts and Sciences, in Valencia, Spain, is a mammoth "city within a city," home to an opera house, planetarium, and an aquarium that was conceived by architect Felix Candela as a world beneath the sea. Clad in a thin white concrete shell, the Oceanographic Park's two-level main building emerges from a man-made lake in an arc that recalls the majestic pattern of a fish breaking the waves.

Inside, a school of illuminated spheres floats in midair, echoing the organic forms of the marine life on exhibit. Born not of the sea, but from the mind's eye of Israeli designer Ayala Serfaty [RECORD, November 2002, page 292], the evocative light sculpture *Stand By* makes an aesthetic connection between floors while resolving functional issues in the building's program.

Serfaty, whose firm Aqua Creations is known for lighting designs that evoke an ethereal or underwater feeling, was asked to join the project by Valencia-based interior designer Francisco Vasquez. The lighting designer's challenge was to illuminate the 49-foot-diameter open space, which connects a cafeteria on the ground level and an elegant underground restaurant enveloped by a 360-degree aquarium. Lighting components had to block daylight, then create nighttime ambience on the lower level, as well as minimize noise and obscure views of diners below from the crowds above.

The open space inspired Serfaty to envision a "flock" of luminous floating objects. In her Tel Aviv studio, 49 lighting spheres were handmade by applying delicate layers of crushed silk onto laser-cut metal structures. Each sphere, measuring 61.5 inches in diameter and 8.5 inches high, is fitted with six 21-watt compact fluorescent bulbs.

The concrete on the ceiling was too thin to bear the weight of the spheres, leaving the perimeter slab as the only means of support. Engineer Dewhurst Macfarlane and Partners devised a structural solution: a stainless-steel system that supports all 49 spheres from a central column and attaches to the slab via three cables. *Leanne B. French*



Serfaty's chandelier combines crushed silk, metal, and compact fluorescents.

An architect's own office addresses lighting and energy concerns

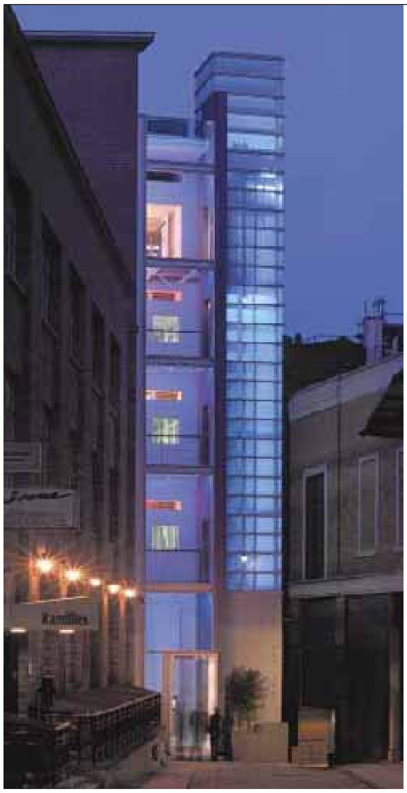
When REID Architecture chose to centralize its operations by merging two London offices, the firm decided to make a bold statement about its practice, creating a showcase for innovation and sustainable office design.

For its new headquarters, the project team renovated West End House, a nondescript, 1950s-style office building situated on a narrow, dark street near Oxford Circus. The architects envisioned a striking arrival point with a new glass-enclosed tower housing a color-shifting illuminated elevator. "We wanted to give a visual lightness to the building and express vertical and horizontal movement with glass and light," says firm director Andrew Leckenby.

In the entrance elevator lobby, blue-gelled fluorescents cast a cool glow at ground level and subsequently change color in lobbies on each floor. The elevator itself is illuminated with colored metal halides. Lighting also highlights the tower's use as a ventilation shaft: red and yellow colored spots accentuate dampers on each floor.

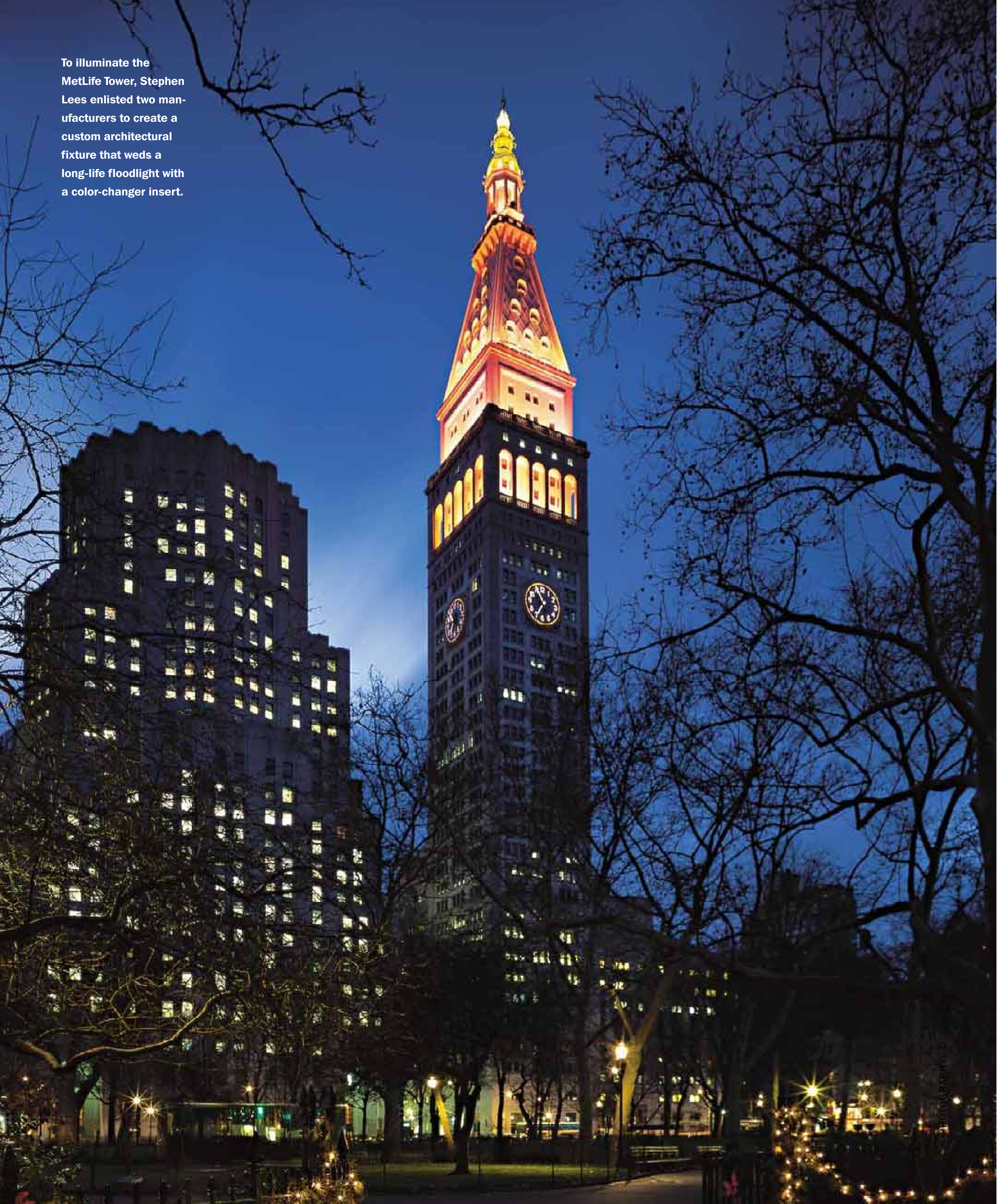
Steel-framed bridges with timber decking and handrails provide access from the elevator lobbies to the offices. Rather than a typical reception area, an open gallery doubles as exhibition space. Illuminated by a track system with dichroic spotlights, it offers dramatic views of Oxford Street. Open-plan work areas are indirectly illuminated by T5 fluorescents reflected off exposed soffits. General light levels are reduced from approximately 32 to 14 foot-candles to accommodate individual task lighting. Breakout meeting spaces are illuminated by exposed T5 fluorescents.

The architects maximized the impact of daylight within the building. New double-glazed aluminum windows with integral vents provide fresh air into offices as required by workers. External motorized blinds, controlled by light sensors on the roof with manual overrides on each floor, limit solar gain. *L.B.F.*



An illuminated elevator tower and external blinds enhance West End House.

PHOTOGRAPHY: © ALBI SERFATY (TOP); ENRIQUE CARRAZONI (MIDDLE); ANDREW SOUTHALL/ARCBLUE.COM (BOTTOM TWO)

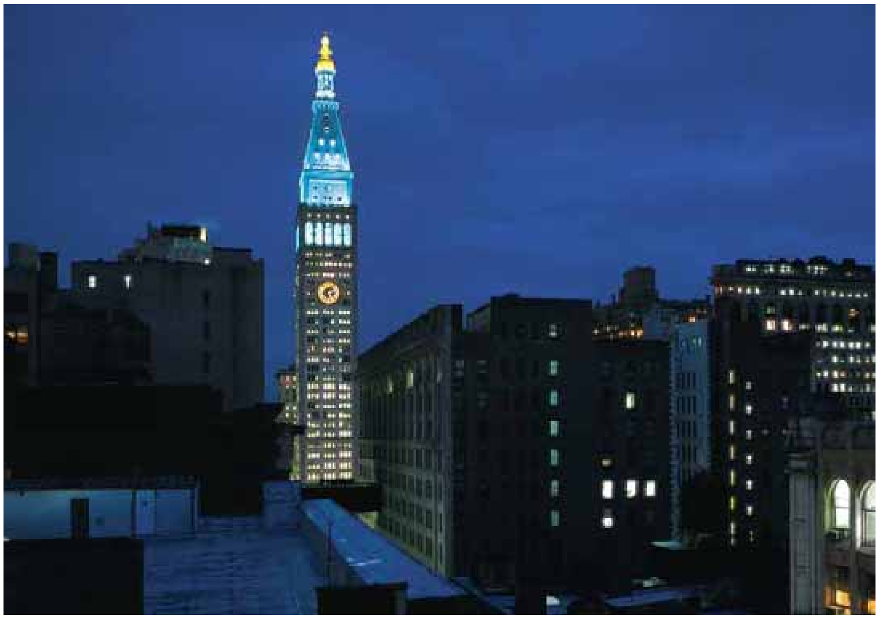


To illuminate the MetLife Tower, Stephen Lees enlisted two manufacturers to create a custom architectural fixture that weds a long-life floodlight with a color-changer insert.

PHOTOGRAPHY: ©

Fitted with custom fixtures born of new technologies, **MetLife Tower** in Manhattan sparks its "eternal light"

By John Calhoun



PHOTOGRAPHY: © ELLIOTT KAUFMAN

Since 1909, the 50-story Metropolitan Life Insurance Tower has been an indelible part of the landscape near New York City's Madison Square Park. At one time the world's tallest building, at 700 feet, the tower at One Madison Avenue was surpassed just four years after its unveiling by the Woolworth Building. Decades later, it suffered the indignity of a 1960s modernization, when its gold-leafed cupola was reclad in anodized aluminum. But the tower's crowning lantern—coined the "eternal light"—has continued to shine, and its clock faces on all four sides have helped a neighborhood keep time.

As part of a $30 million restoration undertaken by the Metropolitan Life Insurance Company and overseen by Building Conservation Associates, the MetLife Tower now stands as a new, improved version of its old self. The cupola has been regilded with 23.75-carat Italian gold leaf, and the cracked Tuckahoe marble facades have been replaced, as have damaged white and turquoise tiles on the clock faces. Originally designed by Napoleon Le Brun & Sons, and modeled on the campanile at St. Mark's Square in Venice, the tower is on the National Register of Historic Places.

The building's facelift is most dramatic at nightfall: The restoration encompassed relighting the clock and the top floors, including the cupola and the eternal light. "The old system just wasn't that good at lighting the building," says Stephen W. Lees, senior principal of the lighting design firm Horton Lees Brogden. To meet the company-sponsored holiday programming, rain or shine, crews had to climb out in very exposed conditions and manually attach acrylic color filters to achieve, say, the tower's green and red Christmas vestments or red, white, and blue Fourth of July colors. Given labor and safety issues, and with the side benefit of expanding its holiday and event programming, MetLife wanted to automate the system.

"When the project began in 1999, there was really only one exterior color-changing fixture available in the marketplace," says Lees. "It was a converted theatrical projector spotlight that had a lamp life of about 700 hours—not long enough for an architectural installation. So we did some rummaging around and ended up marrying [the technologies of] two companies."

Sterner Lighting, a veteran in the exterior floodlighting business, collaborated with Motion Development Inc. (MDI), which specializes in custom scroller and dichroic color-changer installations. "Sterner made a low-profile custom fixture with a ballast and housing, and MDI made a color-changer insert," says Lees. The designer established 12 standard colors, but by using a subtractive cyan, magenta, and yellow process, the system can "give us any color in the spectrum that we want."

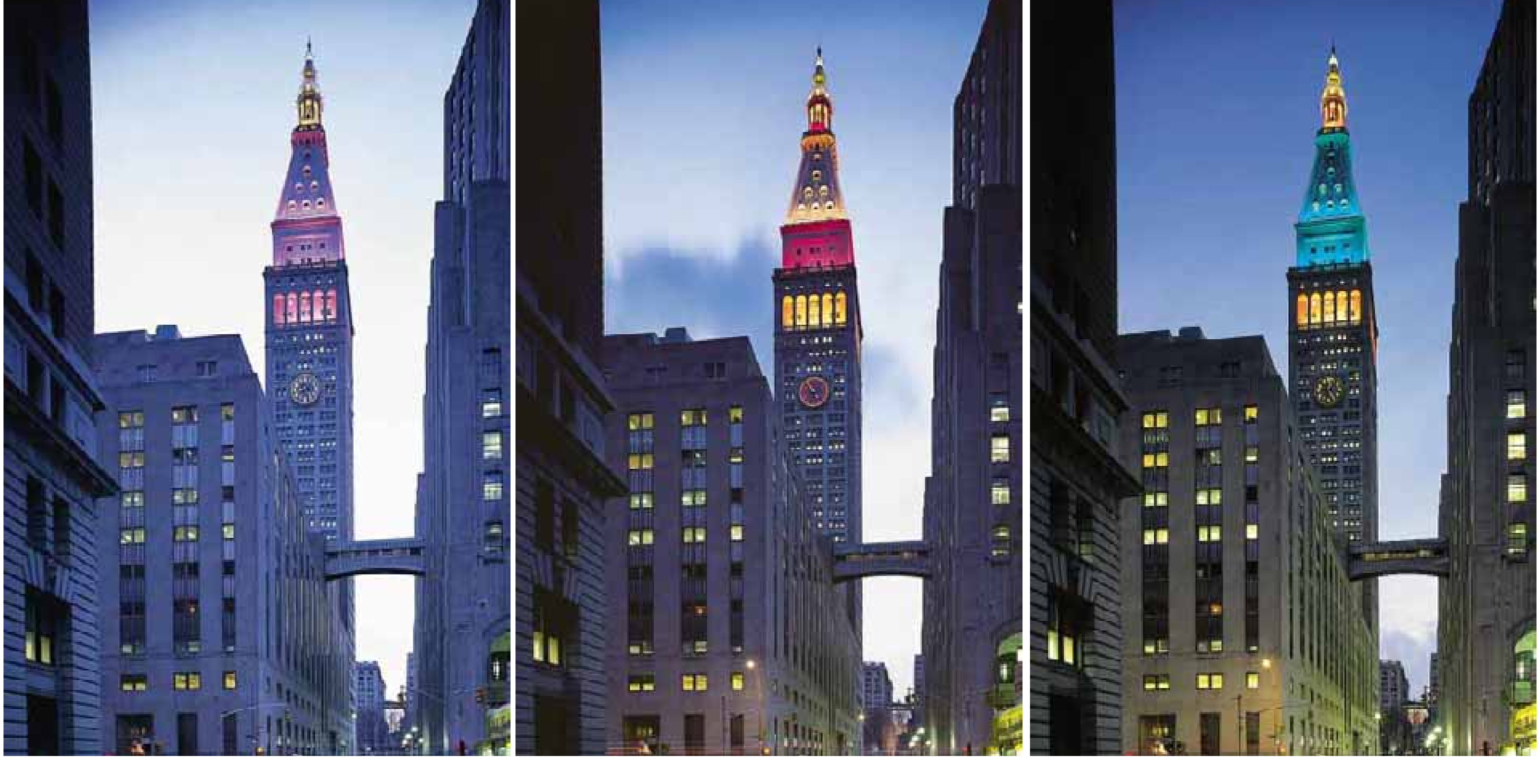
That ability depends on a full-spectrum source, which led Lees to specify ceramic metal-halide lamps, a substantial color-rendering improvement on the tower's existing 1960s-era metal-halide lamps. When the project began, the largest lamp of this type was 150 watts, but with vigorous encouragement by Lees, the manufacturer produced a 400-watt lamp, with a CRI of around 90 and a rated average life of 15,000 hours.

One problem with the building's preexisting lighting had been a spottiness in the washes, which originate from setback roofs and decks on the 31st, 35th, 39th, 45th, and 46th floors. The designer's method of supplying a more even floodlight across the tower faces was to replace the old 1,000-watt units with two to three times as many of the 400-watt lights, spaced closer together. Therefore, Lees says, "if a lamp goes out, it's not really seen; you don't have to change it immediately every time."

Other strategies included changing out the high-pressure sodium fixtures illuminating the cupola, and replacing the lantern's incandescent fixtures with high-output fluorescent sources behind a glowing translucent glass. When the clock chimes each quarter hour, the lantern flashes red. As for the two-story clock itself, says Lees, "We had

John Calhoun is a freelance writer and editor based in New York City. He frequently writes about lighting and cinema design.

Project: *MetLife Tower, New York City*
Architect, restoration consultant: *Building Conservation Associates—Raymond Pepi, Stacy Albanese*
Lighting designer: *Horton Lees Brogden Lighting Design—Stephen Lees, IALD, senior principal; Chad Groshart, designer; Mark Harris*
Electrical engineer: *Jaros Baum & Bolles*
Electrical contractor: *Kleinknecht Electric*
Construction manager: *Structure Tone*



The computer-controlled custom fixtures fitted with ceramic metal halides can create virtually any combination of colors (above).

Set within custom-designed fixtures, the 400-watt lamps have an average life of 15,000 hours (right and below right).

fiber-optic elements made, one for each minute dot with a separate cable, and separate ones for each number, screwed to the inside. The fiber runs to illuminators, which all have color wheels controlled with DMX protocol." The clock arms are lit by compact fluorescents on a trolley system.

All exterior lighting and color changes are run through an automated show controller on the tower's 26th floor. Lees is working on establishing a remote access system from his offices, which overlook the tower from a building half a mile away.

COLORED LIGHTING ONCE REQUIRED GELS REPLACED BY HAND, BUT NEW AUTOMATED FIXTURES OFFER A RAINBOW OF EFFECTS.

MetLife's regular holiday program ran on the new system throughout 2002, but because each fixture has its own computer-controlled address, there is an untapped capacity to tackle more complicated spectacles."For Fourth of July, we could program waving flags," Lees says, by example. He encourages MetLife to illuminate its showplace as an important part of the urban fabric. "Illuminated landmarks belong to the people of the city and should reflect the cultural life of its people." ■

Sources

Custom floodlights: *Sterner Lighting/MDI*

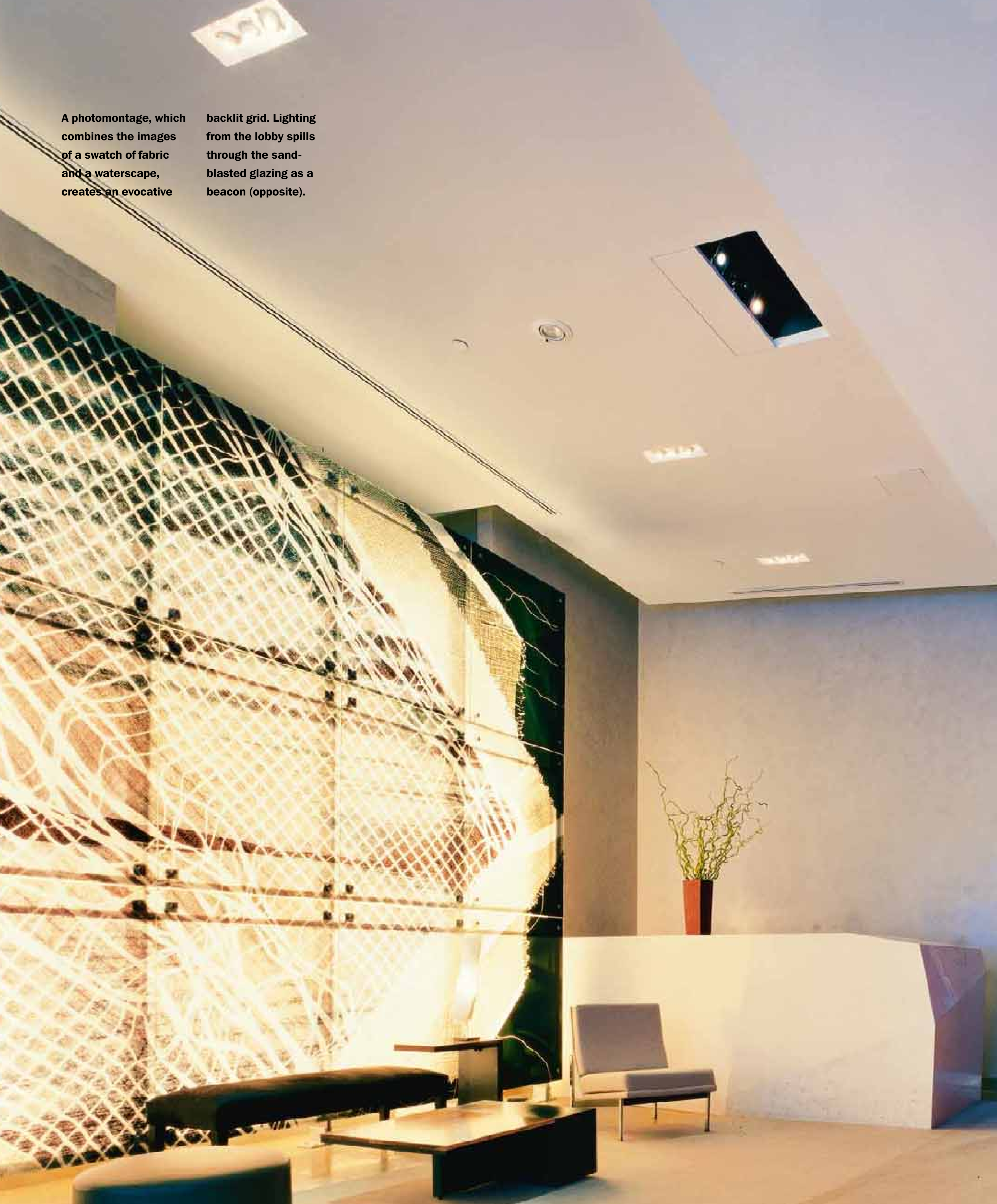
Fiber-optic components: *Visual Lighting Technologies*

Fiber-optic illuminators: *Special-T Lighting*

Fluorescent striplights: *A+L Lighting*

Controls: *Horizon Control*

www For more information on the people and products involved in this project, go to Lighting at ***architecturalrecord.com***.



A photomontage, which combines the images of a swatch of fabric and a waterscape, creates an evocative backlit grid. Lighting from the lobby spills through the sandblasted glazing as a beacon (opposite).

PHOTOGRAPHY: © EDUARD HUEBER/ARCHIPHOTO

With faceted interior planes enhanced by colored lighting effects, this **Atlas** doesn't shrug, it shines

By William Weathersby, Jr.

Long known as the Garment District, the slice of midtown Manhattan in the West Thirties has gone upscale with a new marketing moniker, the Fashion District. Dressing up its concentration of apparel workrooms and wholesalers, with its platoon of clothing racks traversing the sidewalks, the area now counts a Fashion Walk of Fame and the seasonal fashion shows under grand tents in nearby Bryant Park as publicity windfalls.

The 48-story Atlas, a new apartment tower in the heart of the area on West 38th Street, is embracing a complementary voguish imagery. The developer, the Gotham Organization, commissioned a lobby that engages tenants and guests in a colorful, modern setting. Designed by architect Stephen Alton, who collaborated with Paul Gregory of Focus Lighting, the lobby is a progression of spaces where sculptural interior surfaces incorporate contrasting lighting elements that recall art installations. "The arrival spaces are meant to abstractly function as a runway for tenants and patrons," Alton says. From the front entrance, the spaces proceed through colorful, theatrical vignettes toward brighter-lit "backstage" areas closer to elevators, mailboxes, and service areas. Fashion isn't a literal theme, yet the Atlas lobby's color, scale, and imagery subtly relate to the neighborhood's milieu.

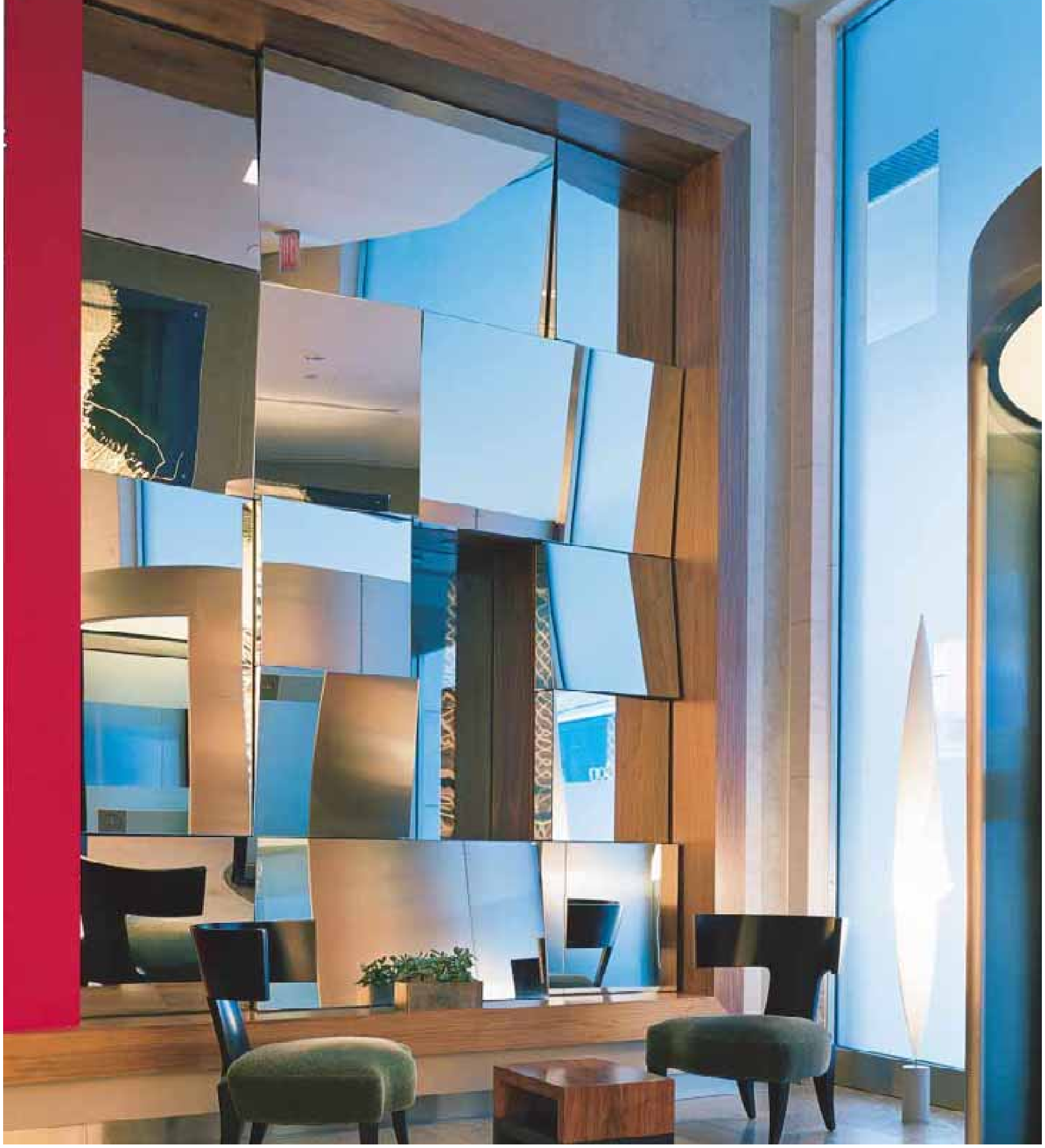
Using the techniques of "key" and "fill" lighting, the designers enhanced interior architectural details, defining each area with a distinct color. With a cubist mirrored wall, backlit mural, expanses of marble, granite, and limestone, and canted ceilings incised by reveals, "the architectural envelope serves as the frame, while lighting is the art," says Alton.

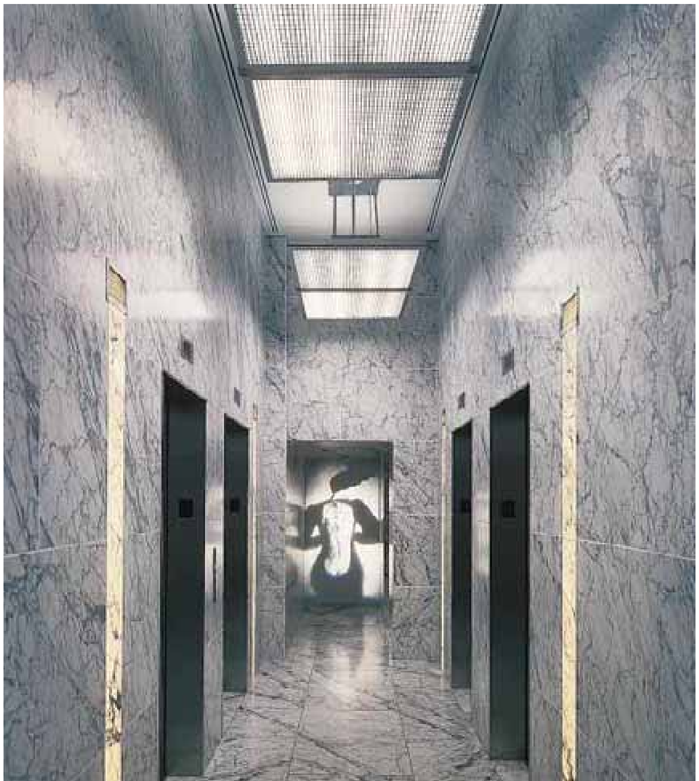
Aside from their creative flourish, the lighting effects have prag-

Contributing editor William Weathersby, Jr., is a freelance writer based in New York City. He edits the interiors and lighting sections of RECORD.

Project: *Atlas, New York City*
Owner, general contractor: *Gotham Organization/Gotham Construction—David Picket, president; Trevor Marshall, executive project manager; Ken Miller, vice president of development*
Interior architect, designer: *Stephen Alton Architect—Stephen Alton, principal; Michael McNeil, project designer; Masako Fukuoka, project interior designer*
Lighting designer: *Focus Lighting—Paul Gregory, principal designer; J.R. Krauza, project designer; Bill Plachy, project manager*

A faceted-mirror wall in the lobby refracts views and daylight flowing through the sandblasted glazing, as well as downlight from ceiling-recessed MR16 luminaires fitted with louvers (right). At one end of the elevator lobby (below), a fashion photo by Jeanloup Sieff is projected onto the wall by an ellipsoidal reflector. Neon and T8 fluorescents create ambient illumination.





matic underpinnings. Achieving the look of art installations was more affordable and easier to maintain by lighting than by commissioning or purchasing works of fine art, Alton and Gregory agree.

The main feature of the lobby is a 12-by-18-foot backlit photomontage designed by Alton and printed on glass panels. A close-up image of a swatch of fabric frayed at its edges evokes a city grid when overlaid onto a waterscape photo. The montage is illuminated by T8 fluorescent strips fitted with 3,000K lamps, dimming ballasts, and color sleeves. “This gave us the best color to capture the image details, and the control to vary the intensity of the wall with the incoming daylight,” Gregory says.

The opposite wall is enlivened with a light sculpture. Using two 150-watt ceramic metal halide ellipsoidal reflectors recessed in the ceiling, the design team projected the illusion of red light emitting from behind the wall, evoking a work by James Turrell. The ceramic metal halide lamps meant minimal maintenance and relamping, ensuring the focus of the image would not be disturbed. Accent lighting at nearby seating areas and at a concierge desk is supplied by ceiling-recessed MR16s.

A granite-lined alcove known as the “water passage” serves as a transition between the main lobby and the elevator corridor. The west wall is a sheet of water cascading down a panel of stainless steel. The water

As a transition from the lobby to the residential elevators, an alcove features a canopy edged with blue neon (above left). Elevator cabs are equipped with color-changing LED strips that feature changing messages (above right). Alton designed a custom illuminated table in the lounge (below).

effect is grazed by T8 fluorescent strips fitted with color sleeves mounted in a cove above. A rectangular ceiling cove with knife edges is lit with deep blue neon, creating the illusion of an endless night sky overhead.

The monochromatic elevator lobby is lined with Carrara marble. Flanking each elevator, a vertical section of marble is backlit by 2,800K neon. Additional T8 fluorescent lamps at 3,000K with dimming ballasts provide ambient light. The endpoint of the corridor showcases a custom 6-foot-high projection of a fashion photograph onto the marble wall.

RATHER THAN DECORATIVE SURFACES OR ARTWORK ON DISPLAY, LIGHTING REINFORCES THE TOWER'S UPSCALE LOOK.

Color-changing LED fixtures are unexpected details defining the rear of each elevator cab. The LED units display messages and graphics while providing most of the illumination. New messages are programmed by building staff via a wireless computer network. Additional T8 fluorescents set within a curved ceiling cove heighten ambient lighting.

In the mail room, an elliptical cove pierces the ceiling plane, with red-orange neon evoking a sky at sunset. A shelf below the mailboxes is backlit by a low-voltage striplight. At the Atlas, even collecting one's junk mail becomes a theatrical experience. ■

Sources

Downlights: *RSA Lighting*

Fluorescents: *Lamar Lighting*

Ballasts: *Lutron*

Projections: *ETC; Altman Lighting*

Low-voltage striplights: *Tokistar*

Elevator LEDS: *LED Effects*

Neon: *Manhattan Neon*

Dimming system: *ALM*

www For more information on the people and products involved in this project, go to Lighting at **architecturalrecord.com**.

Renovations to Little Hall

Princeton University, New Jersey

Architect:	Kieran Timberlake Associates LLP Philadelphia, Pennsylvania
Partner-in-Charge:	Stephen Kieran, FAIA
Project Team:	James Timberlake, FAIA, Amelia Floresta, AIA, Sam Robinson, RA, Linh Tran, Yves Gauthier, Clifton Fordham, Marceli Botticelli
Photographer:	© Barry Halkin Photography Philadelphia, Pennsylvania

> *" In these hundreds of submissions, we saw a lot of found industrial buildings that had major interventions to make them offices or whatever else, and they were all successful to some degree, but this one was just a gem. It's a great found object, a reclamation that really capitalizes on what's there. It's serious, with the architects making great utilitarian use of what they had found, but then playful as well; they obviously had fun adding in these artful little panels. A very resourceful use of the space. By capitalizing so well on what was already there, this building really took a leap."*
>
> **The Jury**

inside this issue

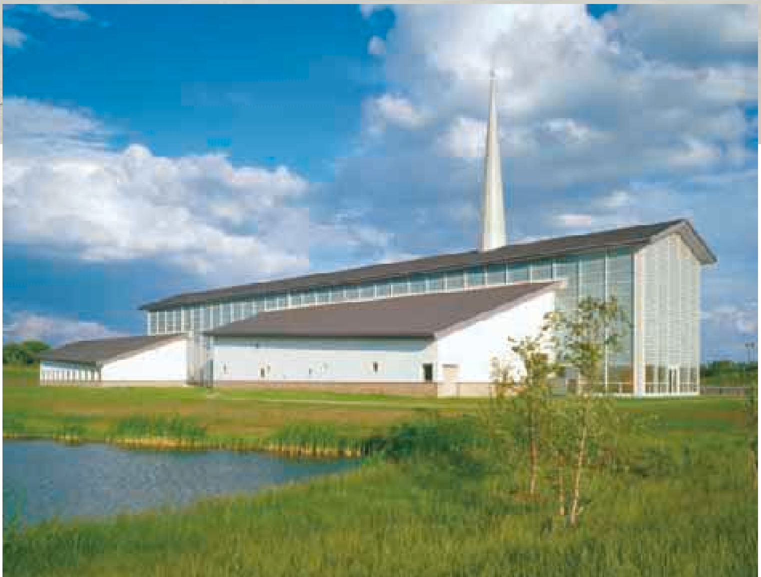
The Brick Industry Association, in conjunction with *Architectural Record*, is pleased to present the six winners of the 2003 Brick in Architecture Awards, presented alphabetically by firm.

Church of St. Mary at Fremont Center

Mundelein, Illinois

Architect:	Lohan Caprile Goettsch Architects Chicago, Illinois
Principal-in-Charge:	Dirk Lohan, FAIA
Project Architect:	Al Novickas
Project Manager:	Jim Schubert
Photographer:	Dirk Lohan, FAIA

> *" This is the one, single project that really captures a sense of space. It fits in the landscape as if it was always there. Breathtakingly simple. There's a serenity to it. The brick portions anchor it into the plane, and then the sanctuary portion of the building completely soars. Mounting the solid material against the transparency of the glass is very effective. There's an otherworldly quality to this design."*
>
> **The Jury**



Addition to the Timothy Dwight Elementary School

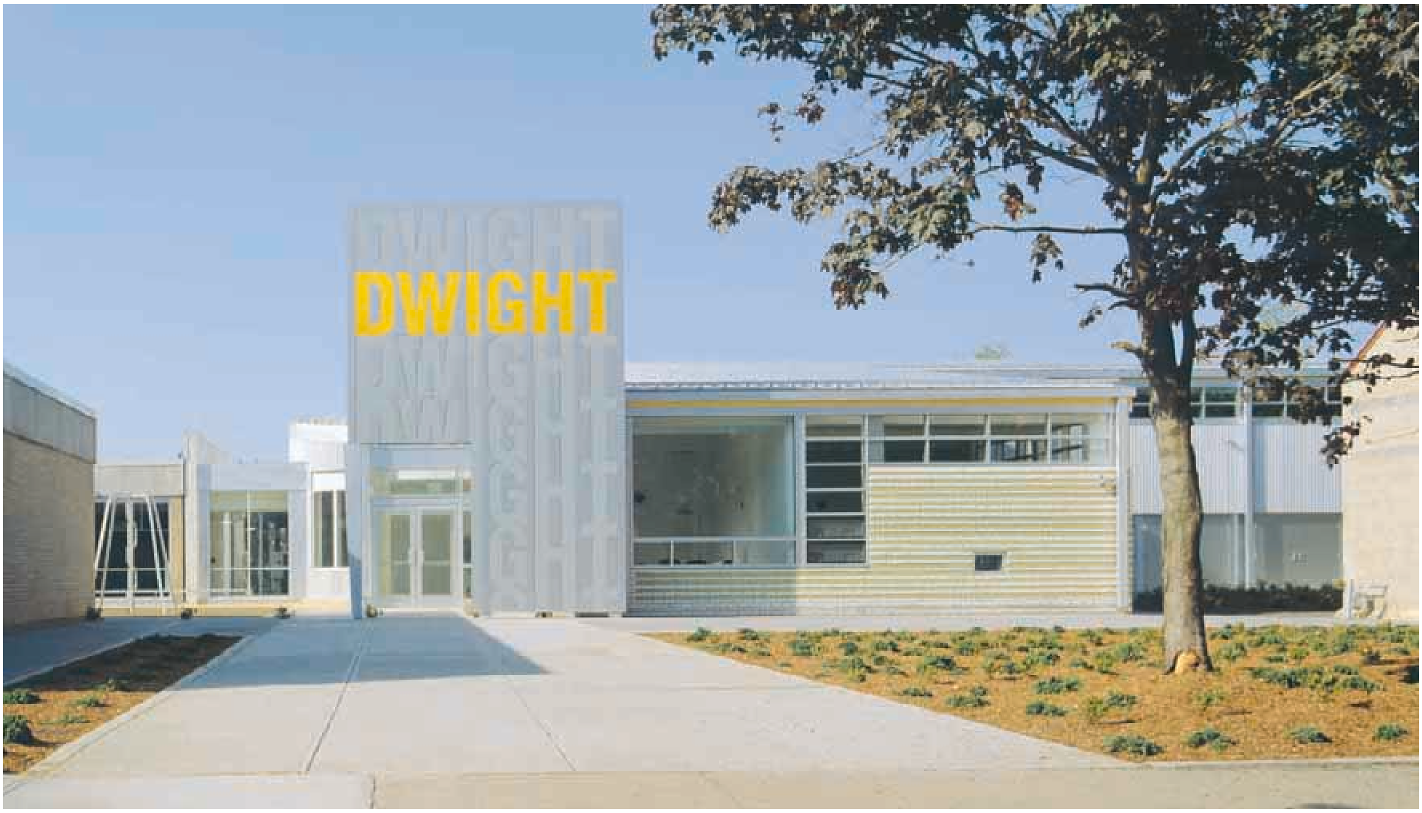
New Haven, Connecticut

Architect: Michael Haverland Architect/
Yale Urban Design Workshop
New York, New York & New Haven, Connecticut

Project Designer: Michael Haverland, AIA

Associate Architect: TAMS Consultants
Boston, Massachusetts

Photographer: Andrew Bordwin Photography
New York, New York

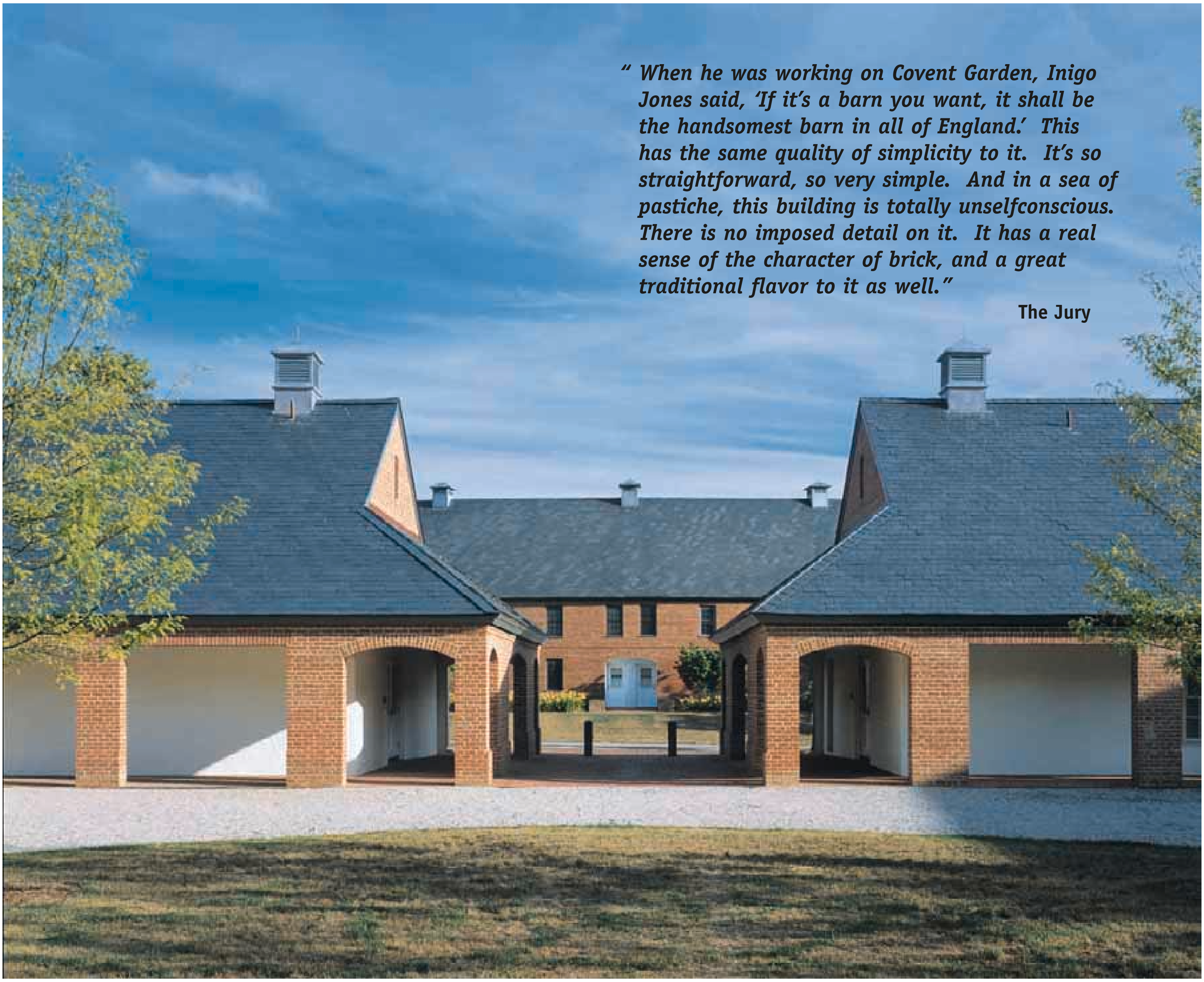


> *" This was the most fun school project we'd seen. Just joyful. A delight. A simple building in the best way. It doesn't pretend to be something it's not, that is, a little red schoolhouse. It doesn't aspire to be anything more than the lovely little school that it is. And its elegantly simple skin will make a nice addition to the neighborhood."*
>
> **The Jury**

New Student Housing Complex

St. Mary's College of Maryland
St. Mary's City, Maryland

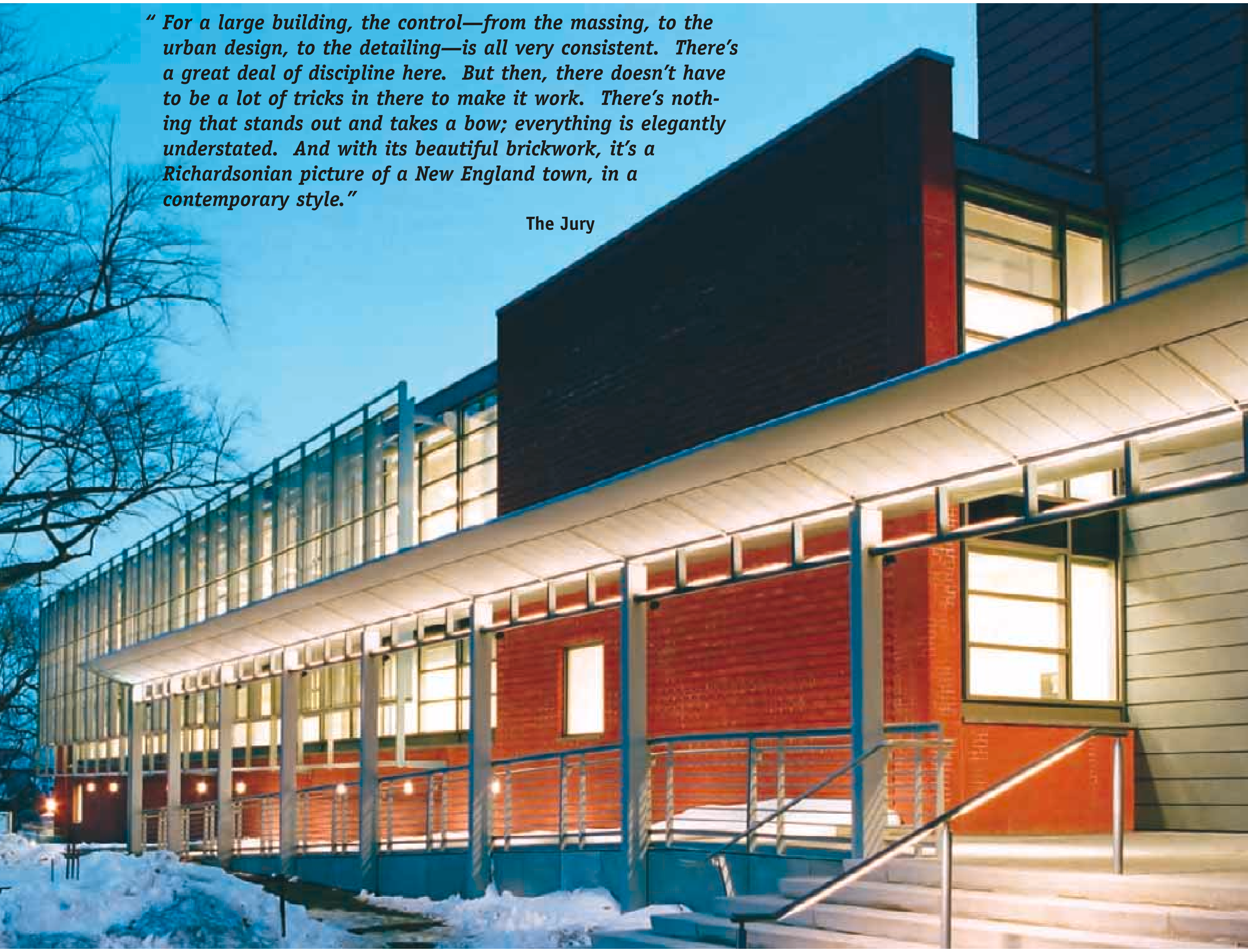
Architect:	Muse Architects Washington, DC
Principal:	Stephen Muse, FAIA
Project Architects:	William Kirwan, AIA, John Thorp
Photographer:	© Alan Karchmer Washington, DC



> *" When he was working on Covent Garden, Inigo Jones said, 'If it's a barn you want, it shall be the handsomest barn in all of England.' This has the same quality of simplicity to it. It's so straightforward, so very simple. And in a sea of pastiche, this building is totally unselfconscious. There is no imposed detail on it. It has a real sense of the character of brick, and a great traditional flavor to it as well."*
>
> **The Jury**

Smith College - Brown Fine Arts Center

Northampton, MA



> *" For a large building, the control—from the massing, to the urban design, to the detailing—is all very consistent. There's a great deal of discipline here. But then, there doesn't have to be a lot of tricks in there to make it work. There's nothing that stands out and takes a bow; everything is elegantly understated. And with its beautiful brickwork, it's a Richardsonian picture of a New England town, in a contemporary style."*
>
> **The Jury**

Architect:	Polshek Partnership Architects New York, New York
Principals:	James S. Polshek, FAIA Susan T. Rodriguez, FAIA
Project Team:	Joseph Fleisher, FAIA Joanne Sliker, AIA Steven Peppas, AIA John Lowery, AIA
Photographer:	© Jeff Goldberg/ESTO Photographics, Inc. Mamaroneck, New York

Amarillo Travel Information Center

Texas Department of Transportation
Amarillo, Texas

Architect: Richter Architects
Corpus Christi, Texas

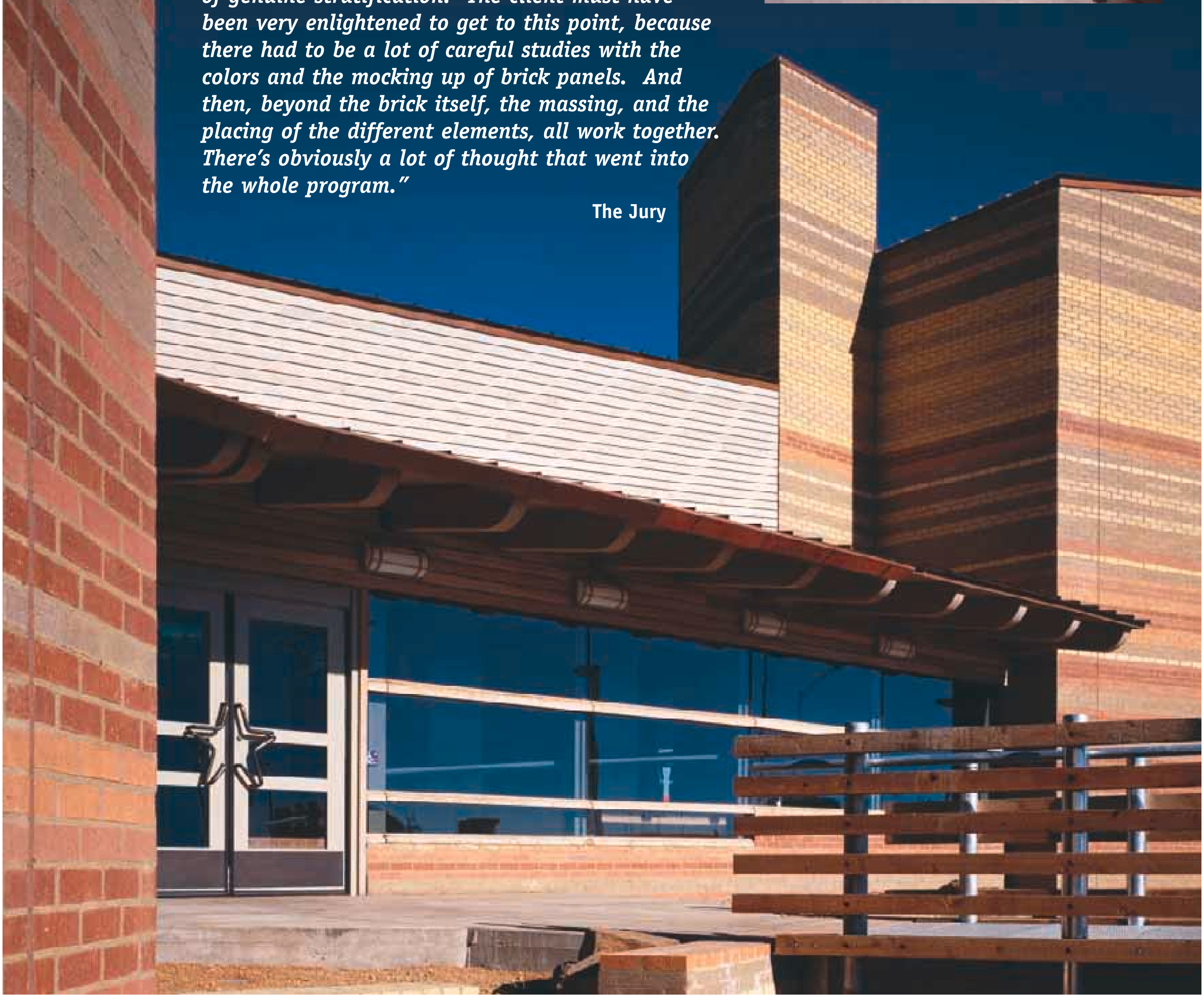
Principals-in-Charge: David Richter, FAIA
Elizabeth Chu Richter, AIA

Design Team: David Richter, FAIA, Elizabeth Chu Richter, AIA,
Samuel D. Morris, AIA, Stephen Cox, AIA,
Sheldon Schroeder, Lonnie Gatlin, Manual Ramirez

Photographers: © Craig Blackmon
Dallas, Texas

© David Richter, FAIA (snow shot)
Corpus Christi, Texas

> ***"The use of color is subtle yet fabulous. It's astounding. And it's not static; it has the liveliness of genuine stratification. The client must have been very enlightened to get to this point, because there had to be a lot of careful studies with the colors and the mocking up of brick panels. And then, beyond the brick itself, the massing, and the placing of the different elements, all work together. There's obviously a lot of thought that went into the whole program."***
>
> **The Jury**



Amarillo Travel Information Center
Amarillo, Texas

THE 2003 BRICK IN ARCHITECTURE AWARDS

The Brick Industry Association and *Architectural Record* are pleased to present the winners of the 2003 Brick in Architecture Awards. The judging was held Friday, 7 March, at the offices of *Architectural Record* in New York City. The four jurors were selected by the editorial staff of *Architectural Record*, and were as follows:

Michael R. Doyle, AIA
Acheson Doyle Partners
New York, New York

Harold Fredenburgh, AIA
Fredenburgh Wegierska-Mutin Architects
New York, New York

Alan Gordon, AIA
Pei Cobb Freed & Partners
New York, New York

Nancy Lago, AIA
Equisetum
Pawling, New York

This year's program had 387 submissions, a record number. The large field made for intense competition, and the judging lasted all day, with the four jurors arguing passionately over the twelve finalists for over an hour. In the end, six projects were chosen as the best in field, with no ranking between them.

The Brick Industry Association would like to thank all those who entered this year's awards; it's encouraging to see that so many architects are producing so many great designs in brick. We'd also like to thank McGraw Hill and *Architectural Record* for being such gracious hosts during our stay in New York City.

Thanks again to all who entered this year's awards program. Our next awards program will be held in 2005. Look for the Call For Entries in late fall of 2004. Or, if you didn't receive one for this year's program and would like to for the next, feel free to e-mail John Grgurich with the request at grgurich@bia.org. Please include your firm's name, a good contact name, and address, phone, fax, and e-mail.

BIA ©2003

Trains in Spain are complemented by Illuminated planes at the renovated mixed-use **Salamanca Rail Station**

By Leanne B. French

Project: *Salamanca Rail Station, Salamanca, Spain*
Client: *NECSA*
Architect: *RTKL, Madrid—Jorge Berioz, principal in charge; Ricardo Cerezo, Emma Chambers, Juan Carlos Gomez, Mariana Tweedie, Bobby Wong, Ernie Zabarte, project team*
Lighting designer: *T. Kondos Associates—Theo Kondos, IALD, principal designer*

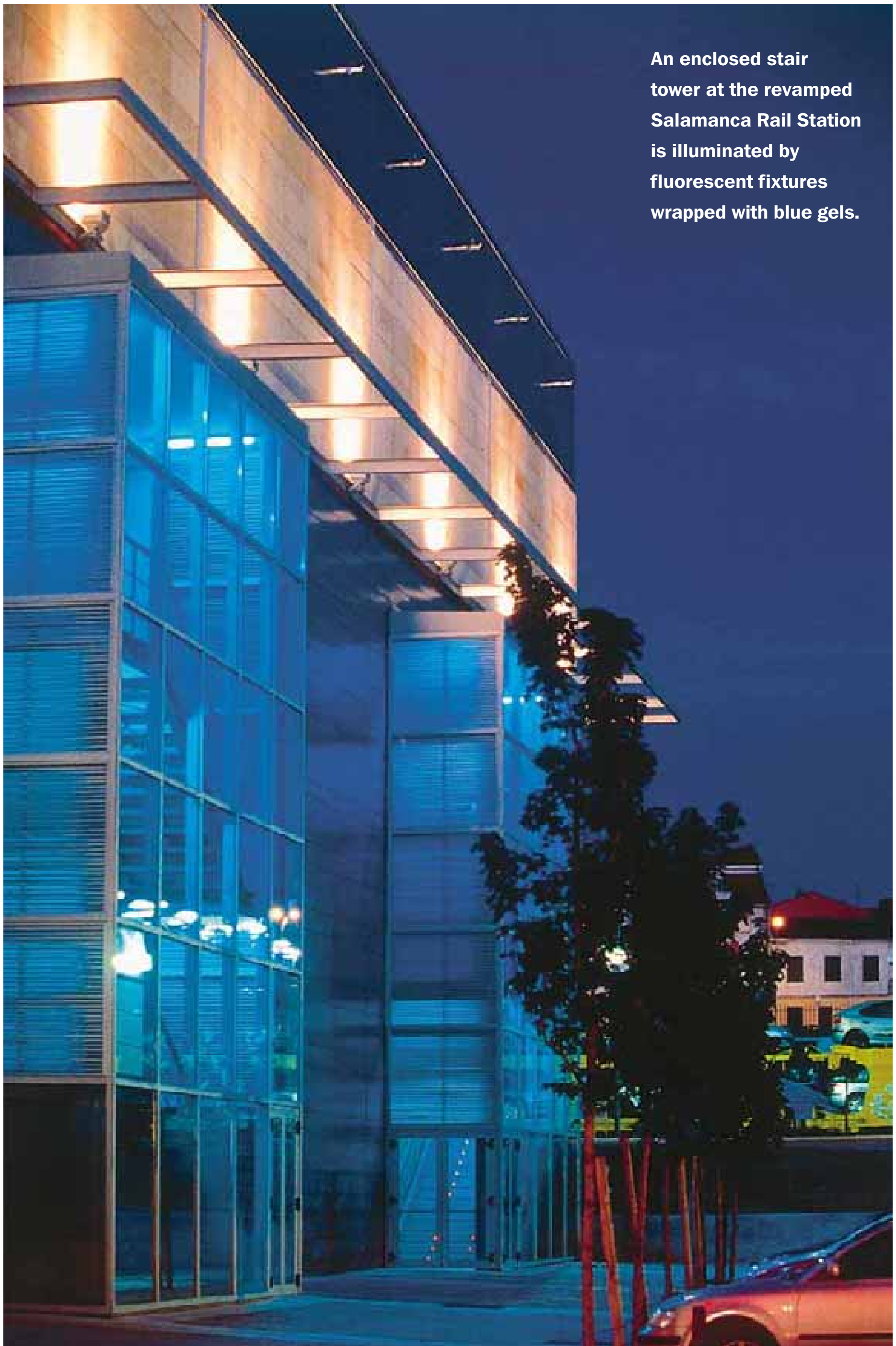
European train travel carries a romantic allure, evoking adventures aboard the Orient Express or bullet trains barreling through the countryside. But many travelers today would rather bypass the romance of the rails for the efficiency and comfort of air or car travel. The reality of lagging business prompted the Spanish rail authority, RENFE, to team with developer Grupo Riofisa to create a new mystique for train excursions within the country. Operating under the name NECSA, the partnership is transforming train stations throughout Spain from mere points of arrival and departure into entertainment and retail hubs that are becoming destinations in their own right.

Recently, NECSA completed an award-winning, $8.7 million mixed-use expansion that envelops the existing train station in the university city of Salamanca. The Madrid office of RTKL teamed with New York City–based lighting consultant T. Kondos Associates to update and expand the nondescript 1950s station into "a viable retail and entertainment venue and a 'landmark' addition to the city," according to RTKL principal in charge Jorge Beroiz. "Our philosophy was to keep the design simple and bold, and marry tradition with modernity," he says. "We wanted to blend the formal institutional expression of a train station with the more playful architectural language of leisure."

During the day, the station's simple form and cladding of local limestone projects a formal air and links the new entrance to the city's historic architecture. At night, when entertainment venues come alive, a new, more modern expression emerges in free shapes, colors, and lighting. An angular metal canopy hovers over an exterior plaza that functions as an outdoor foyer. Three blue, wavelike ribbons appear to float beneath the canopy and pass from the exterior through a glass entry wall, drawing visitors inside toward shops, restaurants, and a cinema. A metal obelisk rises through a staircase as an iconic presence to one side of the entrance.

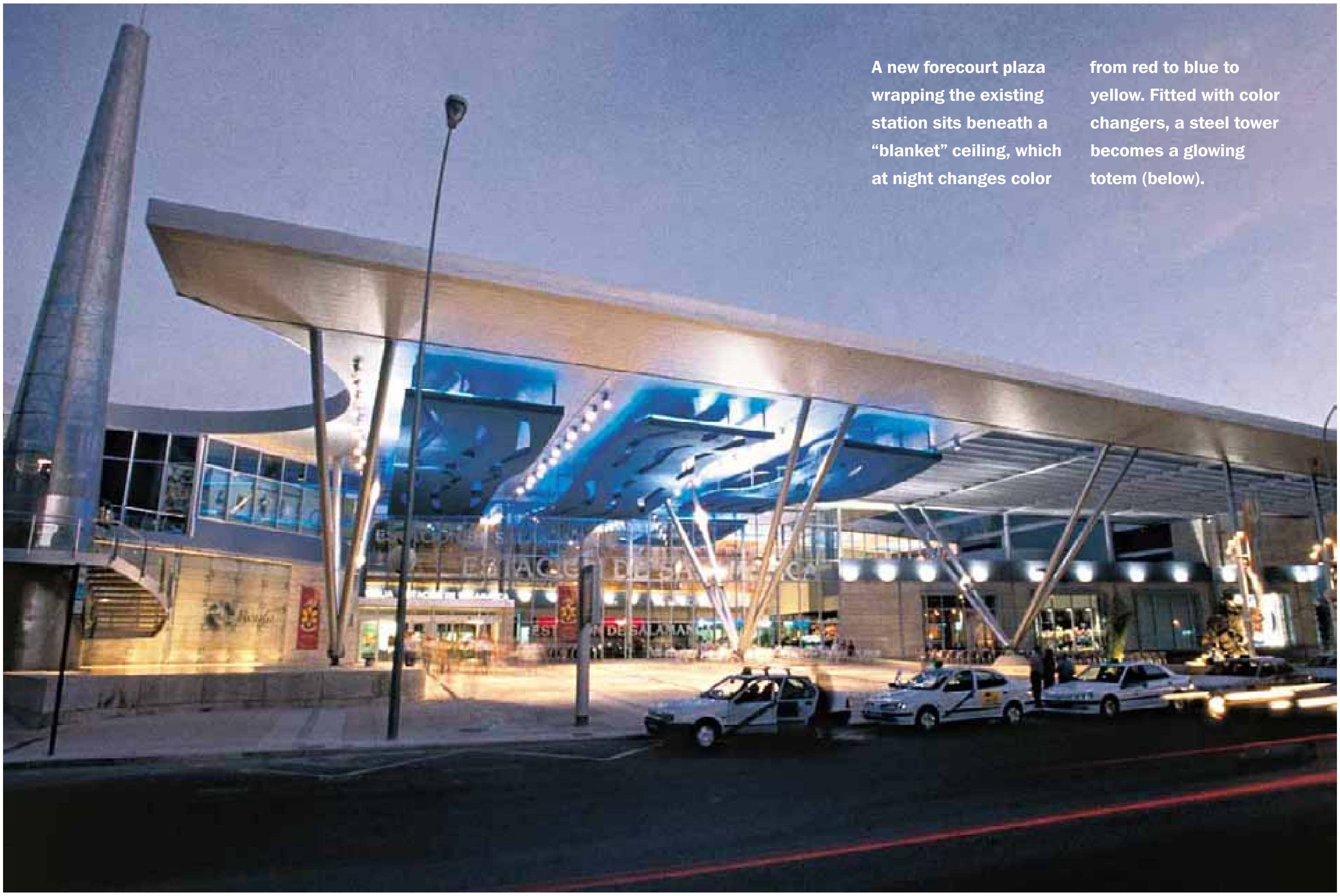
Lighting invigorates the architectural surfaces and accentuates the playful elements of the design. "The entrance is more of a straightforward arrival point during the day but is heightened as an

Leanne B. French is a freelance writer and a documentary filmmaker based in New York City. She is a frequent contributor to RECORD*'s special lighting section.*



An enclosed stair tower at the revamped Salamanca Rail Station is illuminated by fluorescent fixtures wrapped with blue gels.

PHOTOGRAPHY: © PAUL BOCK



A new forecourt plaza wrapping the existing station sits beneath a "blanket" ceiling, which at night changes color from red to blue to yellow. Fitted with color changers, a steel tower becomes a glowing totem (below).

entertainment venue by lighting at night," says principal lighting designer Theo Kondos, who also illuminated the train station at Plaza de Armas in Seville and is working with RTKL on Principe Pio, a station under construction in Madrid.

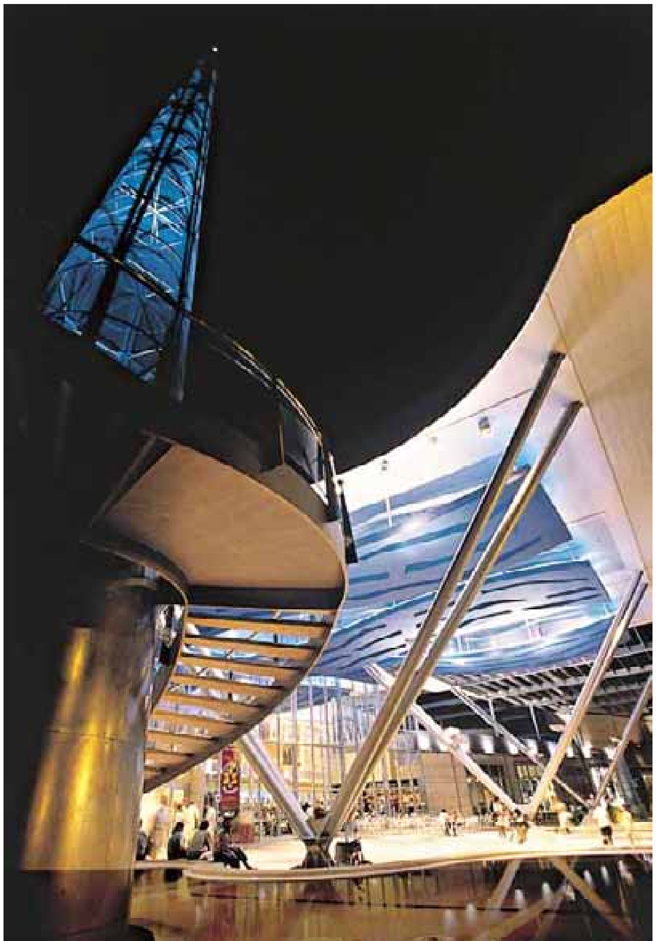
Kondos's approach was to light the exterior theatrically, selectively illuminating architectural elements. "If you light every surface of a building at night, nothing stands out," he says. "Lighting key elements of the station creates a mystique that draws people toward it and guides their circulation from venue to venue."

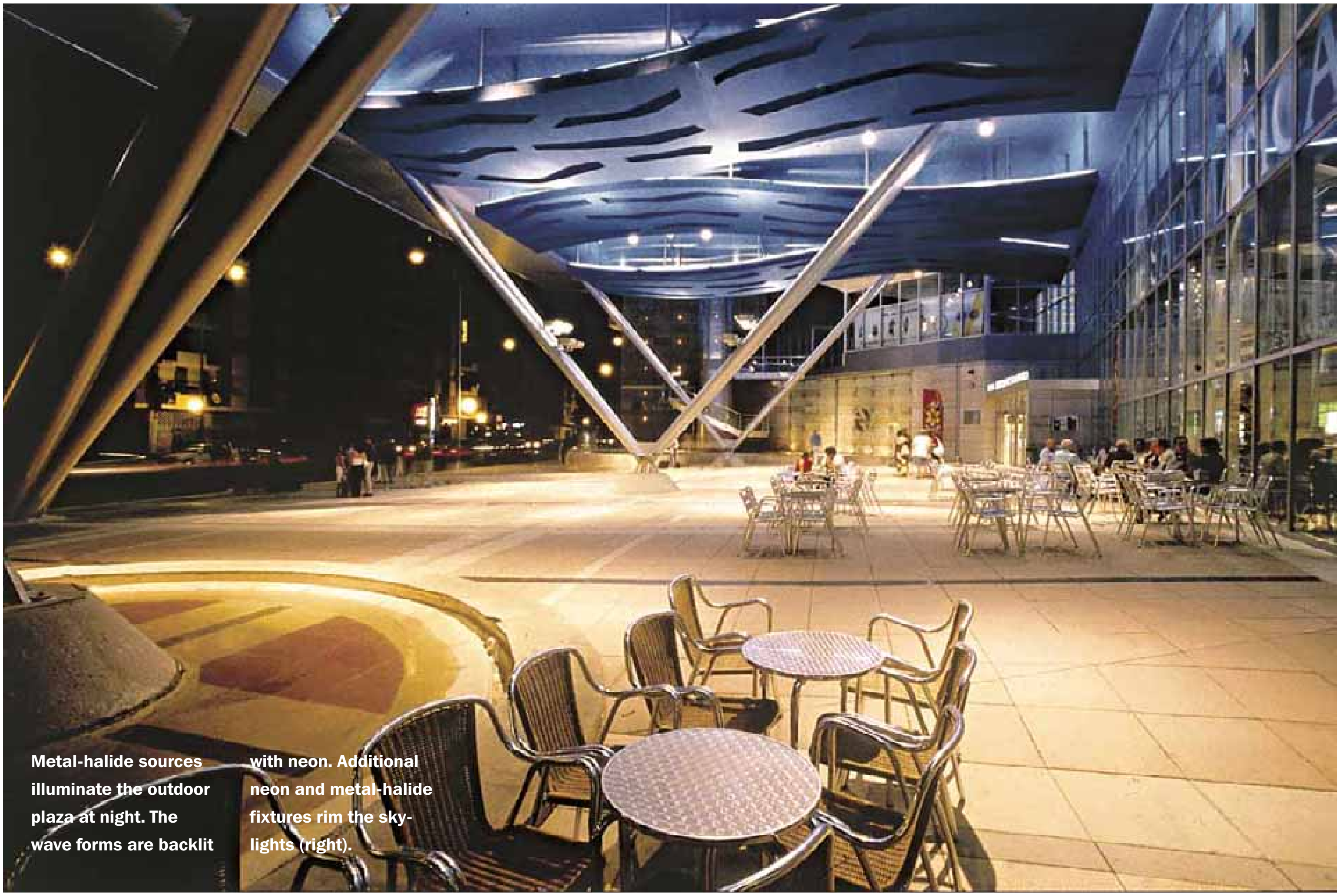
Blue neon lighting reinforces the nighttime effect of the floating wave shapes beneath the exterior canopy. "Against a light background in daylight, the blue ribbons are already vivid," Kondos explains. "At night, we mounted blue neon above the ribbons to accentuate their color and the feeling that they are sailing through space."

NEON AND METAL HALIDES FITTED WITH COLOR CHANGERS ENLIVEN RETAIL AND ENTERTAINMENT AREAS AT THE STATION.

The metal obelisk becomes a totem for the project when washed in multicolored light from within. "There are not many tall buildings in Salamanca," says Kondos, "so the obelisk tower makes a statement that we could emphasize by placing a color changer at its base."

For general illumination, Kondos employed graphic patterns of light to aid circulation as well as to create a comfort zone of safety for patrons. Throughout, he specified 150- and 250-watt metal-halide





Metal-halide sources illuminate the outdoor plaza at night. The wave forms are backlit with neon. Additional neon and metal-halide fixtures rim the skylights (right).

sources, some fitted with blue color filters. "The warm color temperature allows you to see the faces of passersby, but in an inviting glow."

Inside the 322,580-square-foot station, uplights graze graphic elements along a glass wall that glows from indirect illumination. Above retail areas, round skylights are accentuated by blue neon mounted in a circular pattern. Metal-halide fixtures repeat the circular lighting pattern.

In the lower-level food court, Kondos bathed the circular dining area in warm light and repeated the wave-shaped ribbons carried through from the exterior. "We wrapped the food court with a frame of continuous fluorescent uplights and then created a 'chandelier' of ribbons, with pink and blue neon reflecting colored light on the ceiling," he explains. All lighting is connected to an energy-management system, while the types and wattages of lamps were kept to a minimum to simplify maintenance.

Kondos notes that the placement of light can turn even quiet architectural details into a heightened experience for travelers, such as a glass-enclosed tower of exit stairs at the Salamanca station he subtly illuminated with blue-gelled fluorescent fixtures. "Access stair towers are often lit with overpowering white fluorescents," he says. "But this staircase reads as part of the facade, and lighting helps it step into the forefront." ■

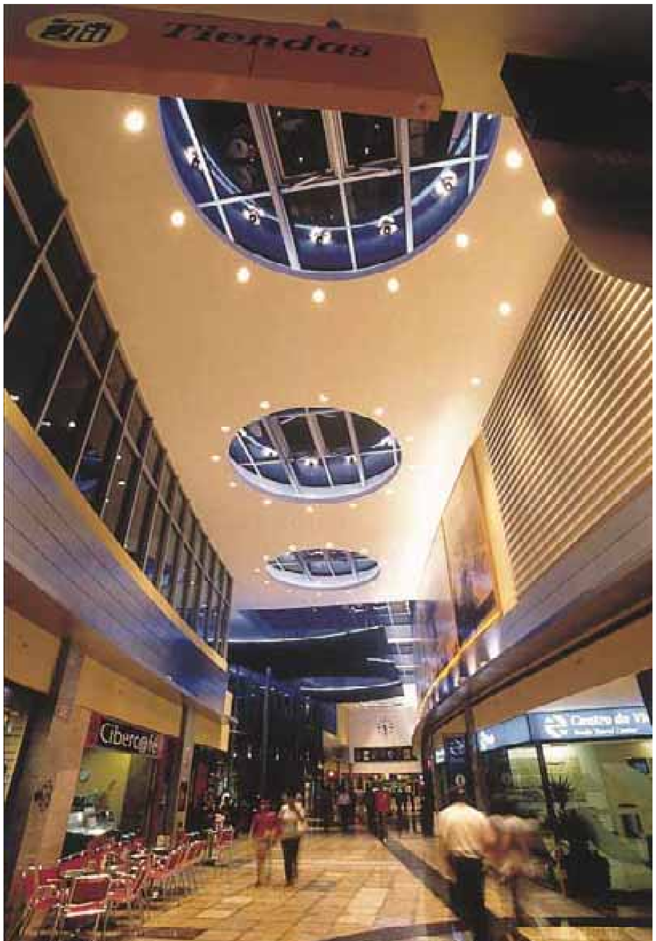
Sources

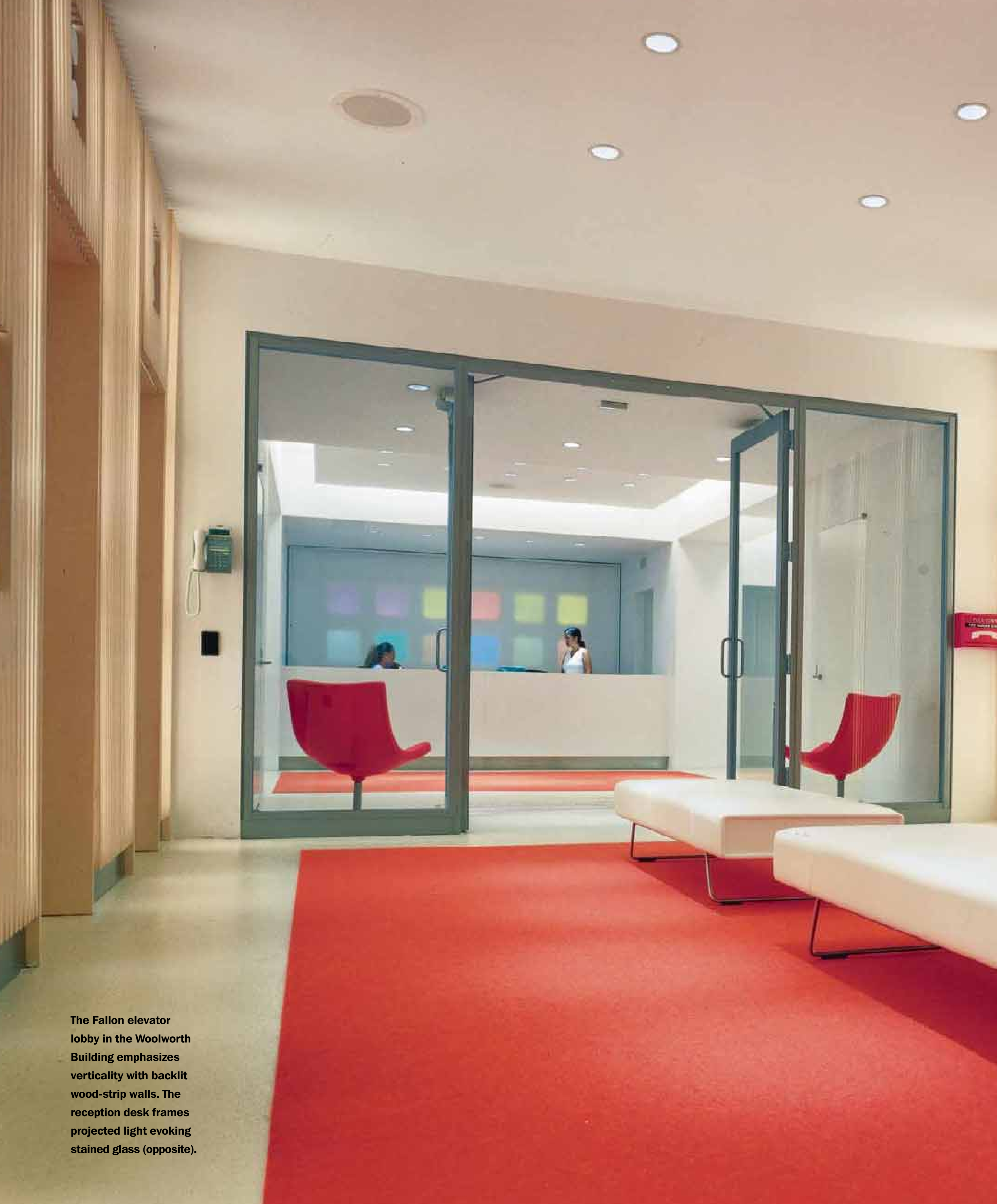
Interior metal-halide fixtures: *Lucent Lighting UK*

Exterior metal-halide floods: *Philips Lighting*

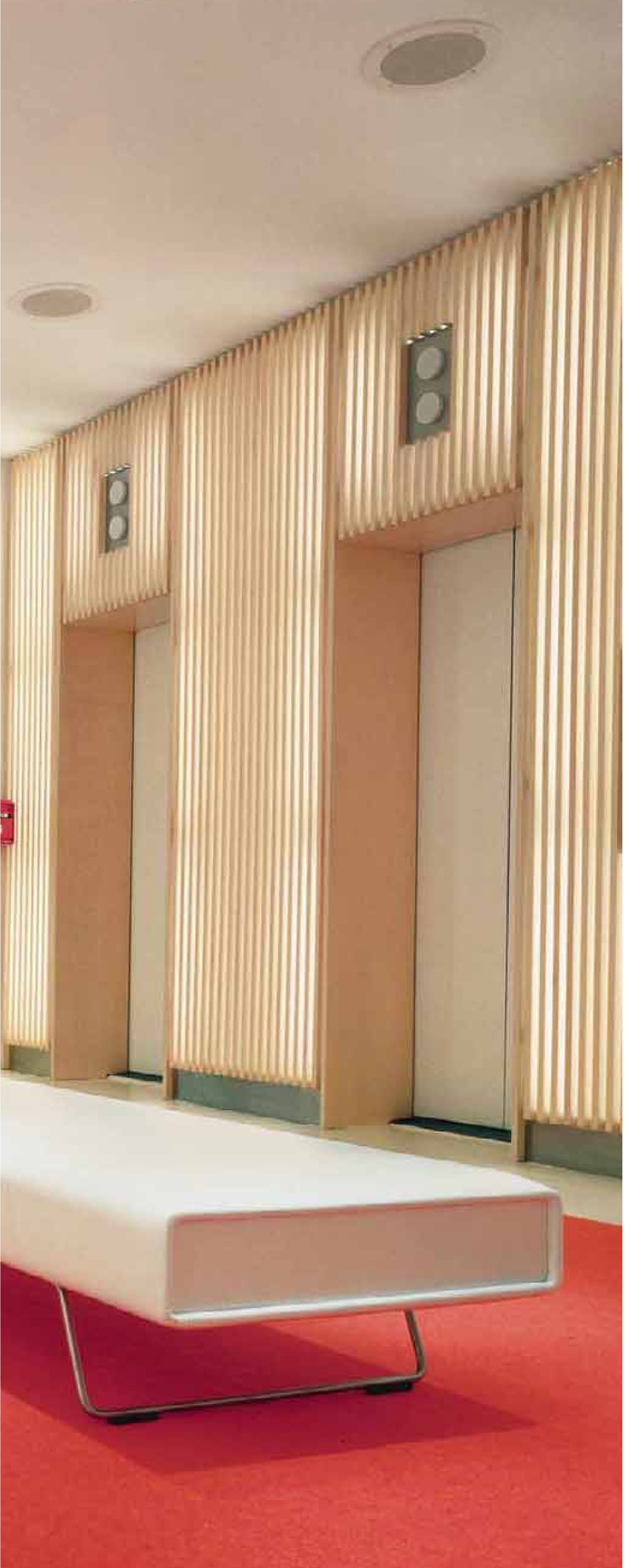
Color changers: *Irideon*

WWW For more information on the people and products involved in this project, go to Lighting at ***architecturalrecord.com***.





The Fallon elevator lobby in the Woolworth Building emphasizes verticality with backlit wood-strip walls. The reception desk frames projected light evoking stained glass (opposite).



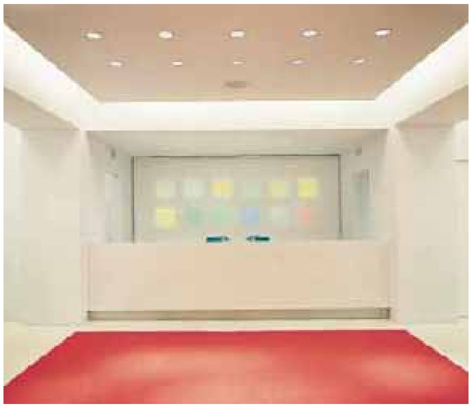
PHOTOGRAPHY: © PAUL WARCHOL

Neo-Gothic abstractions cast a glow of creative inspiration at the **Fallon** ad agency in New York City

By Leanne B. French

The recent relocation of the New York City office of the global advertising agency Fallon was an auspicious move. Not only had the agency doubled in size and outgrown its previous space, but through collaboration with MAP Architecture + Design it tailored an ample 28,000-square-foot home base within Cass Gilbert's landmark Woolworth Building on lower Broadway. The architectural firm and the client envisioned a progressive office design that would reflect Fallon's creative identity while making a subtle contextual connection to Gilbert's 1913 "cathedral of commerce."

"Rather than try to design something with a literal relationship to the building, we decided to take some of the principles of its neo-Gothic architecture and reinterpret them in an abstract, Modern way," explains MAP principal architect Morris Adjmi. "Principles that we felt were vital were verticality and light."



MAP's abstractions are introduced in a spacious elevator lobby framed with illuminated panels. Vertical whitewashed maple struts set against expanses of acrylic are backlit by T8 fluorescent striplights mounted at the sides of the panels. Low, museumlike leather-upholstered benches set atop vibrant red carpeting bask in the glow. The combination of materials and backlighting creates a diffused effect in the 17-by-23-foot lobby that is carried through as a motif throughout the office. "The interior is really about the interplay of light and materials and the concealment of lighting within the architectural forms," says lighting designer Karen Goldstick.

From the elevator lobby, visitors enter a reception area defined by a wall painted with squares of colored light, a contemporary interpretation of Gilbert's original stained-glass work in the building's lobby. To achieve the desired geometry and color pattern with lighting, the architects and lighting designer worked with foam-core mock-ups in the MAP offices. Their experimentation led to the use of spotlights and a theatrical rotating color wheel to project green, yellow, blue, and red boxes that

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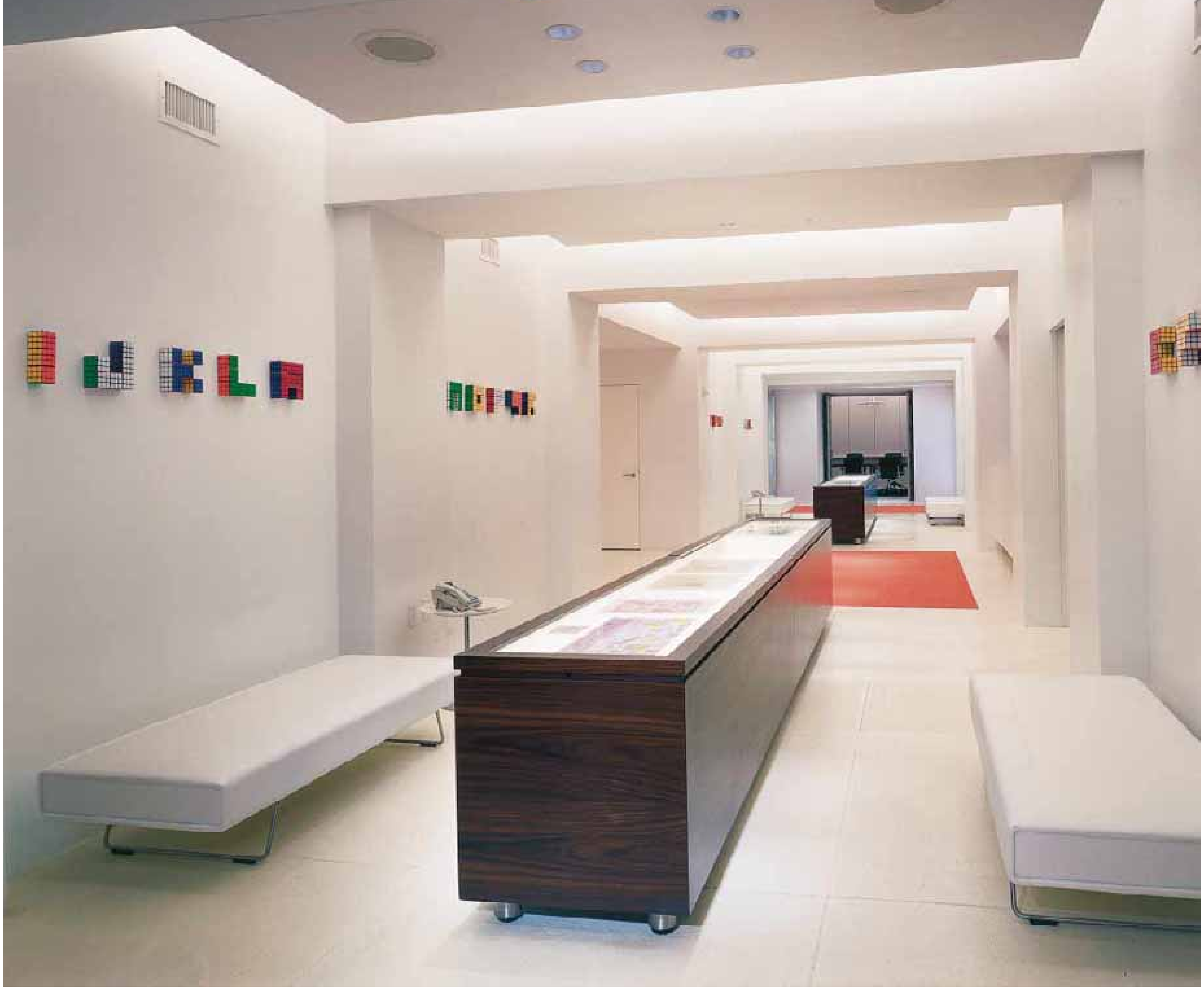
Project: *Fallon, New York City*
Architect: *MAP Architecture + Design—Morris Adjmi, Lisa Mahar, Wesley Wolfe, principal architects*
Lighting designer: *Goldstick Lighting Design—Karen Goldstick, principal lighting designer*
Engineer: *Goldman Copeland*
General contractor: *Lewis & Kennedy*



Custom illuminated display cases double as light boxes for viewing transparencies (above). A room for conducting focus groups features ring-shaped pendants that provide fluorescent uplighting (below).

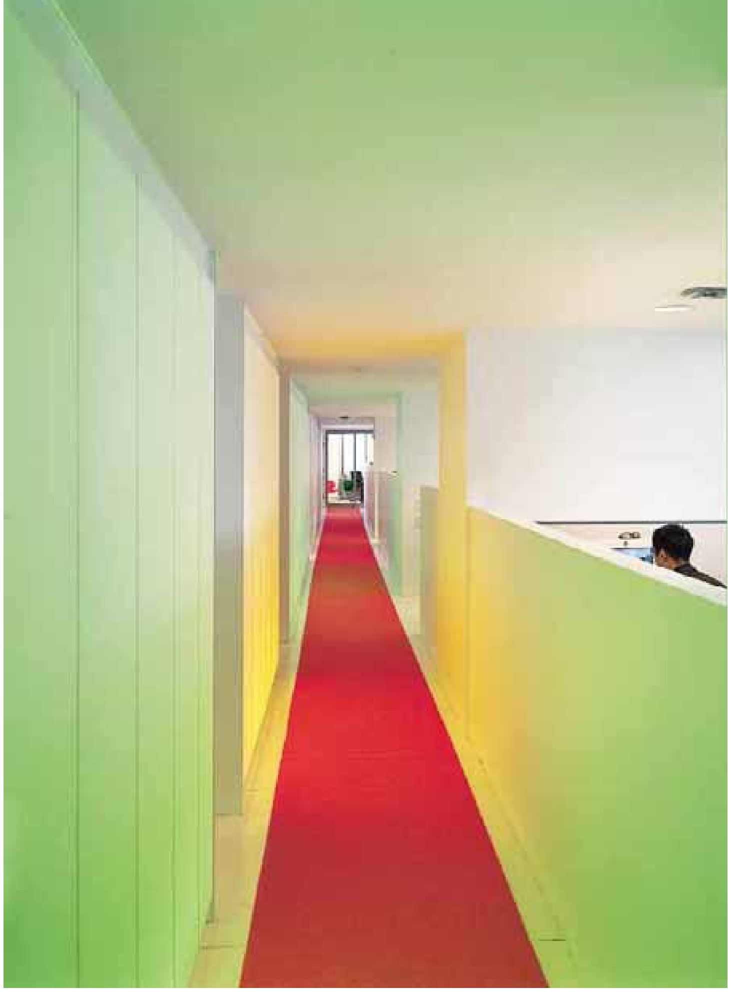
appear, disappear, and dissolve into one another in a captivating display of color and illumination. A fabric scrim behind the white reception desk acts as a canvas to capture the colored lighting.

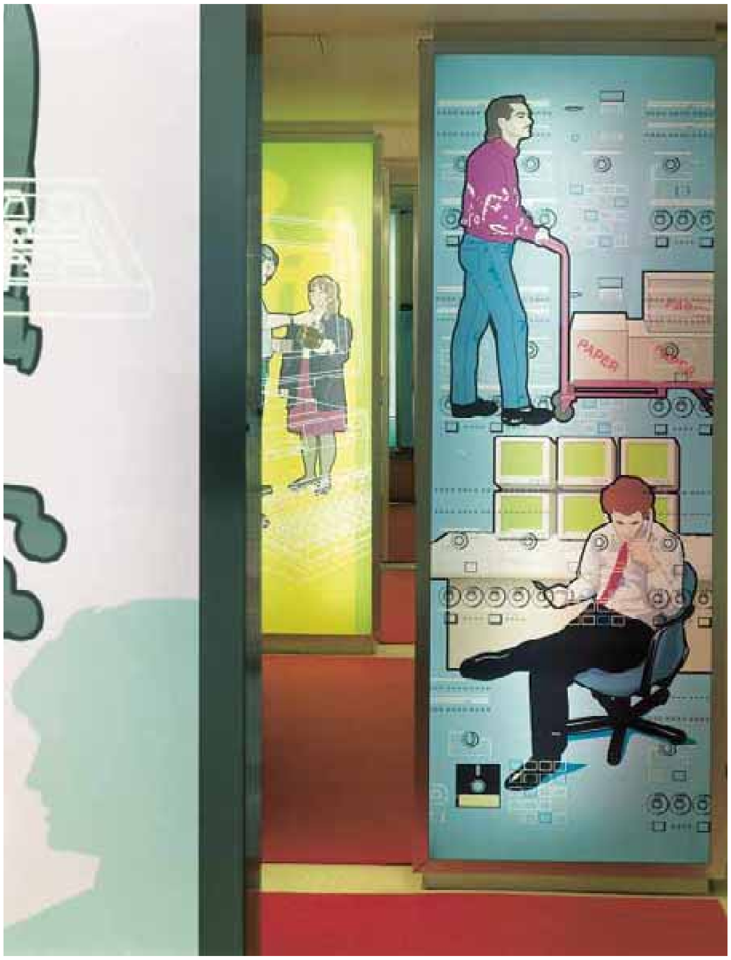
Painting with light at the entry is an artful prelude to the hallways that run perpendicular to the elevator lobby and reception area. The corridors were designed as gallery space for the agency's creative teams. "We wanted to provide a place where the creative employees could present their work in a space that would become a locus for their inspiration," says Adjmi.

CUSTOM LIGHT BOXES ARE SET WITHIN A SHIMMERING WHITE ENVELOPE TO SHOWCASE THE CREATIVE TEAM'S WORK.

To showcase the agency's projects and inspirations, the architects designed two 15-foot-long illuminated rosewood-and-glass display cases that hold inspiring objects or advertising samples, or function as oversize light boxes to view transparencies. Custom millwork was illuminated internally to highlight the display cases. Square downlights wash the stark white walls with light. Natural materials, such as the rosewood used for display tables and maple in the elevator lobby, bring warmth to the gallery-style ambience.

In the workspaces, the multicolored lighting motif is repeated





Along corridors facing open workstations, fabric panels with zippered seams are backlit by T5 fluorescents fitted with color gels (left). Double-sided, illuminated display panels punctuate the path through the office. Showcasing the work of the ad agency, these "billboards" change frequently (below left).

along fabric-covered walls, a way of relating to the stained-glass imagery in the reception area and figuratively alluding to the idea of advertising as eye-catching projected images. Covered in stretched nylon scrims that are joined by zippers, the walls are backlit by T5 striplights sleeved with color gels. "We worked on many mock-ups in a prop warehouse to determine where the striplighting should go, and we ended up with a light fixture mounted at the bottom of the wall so that it washes upward," says Goldstick. A 4-inch-deep cavity was created behind the nylon to house the fixtures.

For the main workspaces, the architects turned what had been a maze of enclosed offices into an open office plan that accommodates 100 employees in two rows of 50 workstations each. At the agency's request, there are only six private offices and a nonhierarchical organization of space to encourage a collaborative working environment. To maximize the use of the space, the architects mapped out a variety of teaming areas, from conference rooms to "telephone booths," which were conceived as "little confessionals" for private work, Adjmi says.

THE STAINED-GLASS MOTIF CONTINUES DOWN CORRIDORS, WHERE ILLUMINATED PANELS FRAME A SERPENTINE PATH.

Workspace lighting is subtly integrated into the open plan and is purposefully understated. "Light was such an important motif throughout the space, and it was so present in the entry, the gallery, and the common hallways," says Adjmi. "In the work area, we thought there should be the presence of light without prominent light fixtures."

Goldstick struck an effective balance, lighting the main workspaces with pendant-mounted T5 uplights for general illumination and suitable light levels for heavy computer use. Lighting in corridors reverts back to the use of thematic colors. Gelled fluorescent fixtures wash corridor walls in green, yellow, blue, and red. A long corridor connecting all public spaces is another showcase for Fallon's work. Six illuminated display panels are staggered perpendicularly along the corridor walls, prompting visitors to navigate through a portfolio of agency projects that changes weekly. Throughout the new office, artful lighting is a persuasive method of conveying Fallon's message and a constant metaphor for the agency's creative vision. ■

Sources

Recessed fluorescents: *Lightolier; Linear Lighting*

Fluorescent pendants, uplights: *Peerless; SPI*

Striplights: *Legion*

Wall washers: *Elliptipar; Insight*

Track-mounted halogens: *Lightolier*

Reception light panels: *NY Display*

Pinspot and color wheels: *SLD*

www For more information on the people and products involved in this project, go to Lighting at **architecturalrecord.com**.

T8 is still the fluorescent lamp of choice

T5 FLUORESCENT HAS SEVERAL DISTINCT ADVANTAGES OVER T8, BUT HIGH COST AND LIMITED AVAILABILITY HAS KEPT IT FROM GAINING THE MARKET SHARE MANY EXPERTS THOUGHT IT WOULD

By Lindsay Audin

When T5 linear fluorescent lamps made their way from European to U.S. shores in 1998, many thought that they would soon displace the T8 as the industry's most popular fluorescent lamp. T5's small diameter and high light output make it very attractive, but T8 is still king. T5 components continue to cost as much as three times those of the T8, and T5 fixtures and ballasts are generally more expensive. The availability of T5 replacement parts is limited to major metropolitan areas, while T8 lamps and ballasts are now found in most retail hardware stores. And improvements in T8 lamp technology have helped it to keep its competitive edge.

A T5 fluorescent primer

T5 lamps are ⅝ inch in diameter, ⅜ inch smaller than T8s. T12 lamps are 1½ inches in diameter. That means the T5's light output is concentrated over a smaller surface area, making it quite a bit brighter than the larger lamps, and easier to focus, as well. T5 fixtures can be made to be quite small, and some of the best optical systems ever offered for fluorescent have been designed for them [see "Inside the New Compact, Indirect Luminaires," RECORD, May 2002, page 331]. In addition, even brighter, high-output (HO) lamps are available as part of the T5 family, which means that in some situations designers can design with fewer fixtures—there are no HO T8s. T5 lamps boast 95 percent lumen retention over average lamp life. They put out more light at higher temperatures than T8s, an advantage when they are used in enclosed fixtures, where the T8s' intolerance to heat can make their light output drop somewhat.

T5s are available in lengths of 22, 34, 46, and 58 inches, with corresponding wattages of 14, 21, 28, and 35; for HO, the power figures go up dramatically, to 24, 39, 54, and 80 watts. When combined with electronic ballasts, efficacies close to 100 lumens per watt are common. T5 HO lamps are so bright that fluorescent high-bay fixtures have begun hitting the market as alternatives to high-intensity discharge (HID). Because T5 lamps are so bright—a 46-inch, 54-watt T5 HO lamp emits nearly double the light of a 4-foot T8—lighting designers must be careful to control their light output by distributing it with diffusers and lenses or using it in indirect distributions.

The T5's shorter lengths and unique pin configuration mean that they cannot be fitted into T8 or T12 fixtures. But, like T8s, T5 lamps are also available in a wide range of CRIs and color temperatures. The T5 lamp has an average 16,000-hour life, 20 percent less than for the T8s or T12s, but the use of programmed start ballasts, which are easier on the lamps during start-up than standard ballasts, can increase lamp life to 20,000 hours. Several types of dimming ballasts are now available for T5. Like high-quality T8 ballasts, they feature low total harmonic distortion, high power factor, and low-noise characteristics.

The Retrolux system adapts nondimming T8 and T12 fixtures for use with T5 lamps and allows them to be dimmed using wireless controls.

PHOTOGRAPHY: COURTESY OF POWERWEB TECHNOLOGIES

Last year, the Lighting Research Center published a complete overview of fluorescent lighting developments on their Web site. You can find it at www.lrc.rpi.edu/nlpip/ by clicking on "Technologies."

T8 technology also improves

To their credit, T8 lamp and ballast manufacturers haven't allowed their price advantage over T5 to lull them into becoming technically complacent. Here are some of the new developments:

- Reduced-wattage 28- and 30-watt lamps are now available in lieu of the original 32 watters, with the same 2,900-lumen output, though they cost slightly more. Because some of the earliest T8 installations are probably ready for relamping now, this is an excellent way to shave a few extra kilowatts off the electric bill in large facilities.
- Ballasts with factors up to 1.2 are available. They can overdrive the lamps, providing more light from the same fixture or allowing fewer fixtures in a new installation.
- Programmed start ballasts can stretch the usual 20,000-hour lamp life to 30,000 hours. If program-start ballasts are not an option because of cost, long-life T8s, running on standard ballasts, can boost average lamp life by 20 percent.
- Higher grade T8s with better color rendition and lumen retention are now available, and the number of T8 dimming-ballast and wiring choices has increased considerably.

With so many options and lower cost, lighting designers may need to look again at their T5 designs to see if they're really better when weighed against overall cost.

Lindsay Audin is president of Energywiz, Inc. (www.energywiz.com), an energy and technology consulting firm in Croton, New York.

New T5 product options

Because the T5 technology itself is so innovative, and it is only a few years old, there hasn't been too much time for improvements. There are some new developments, however, that have appeared recently.

One of the most interesting of these is the Retrolux system, which can be used to adapt standard, nondimming T8 and T12 fixtures for use with T5 lamps and will allow them to be dimmed using wireless controllers. PowerWeb Technologies is working with Westinghouse and Siemens to bring this product package to the U.S. It consists of a "holster" containing a dimmable ballast and wireless communicator that slips onto standard T8 or T12 lampholders. It takes a 46-inch T5 or T5 HO lamp. For additional information about this system, go to www.westinghouse.omni-link.net/news.shtml.

T8 LAMP AND BALLAST MANUFACTURERS HAVEN'T ALLOWED THEIR PRICE ADVANTAGE OVER T5 TO LULL THEM INTO TECHNICAL COMPLACENCY.

The Retrolux product uses Digital Addressable Lighting Interface (DALI)–compatible dimming ballasts, which can be controlled individually with software designed to work with existing building management systems (BMS). Under BMS control, small radio transmitters, which work very much like cell-phone repeaters, are scattered around a building. These communicate with the ballasts. The system has been used in Europe for several years and has quite a track record there. To learn more about it, you can consult PowerWeb Technologies' Web site at www.2powerweb.com.

Taking a dim view

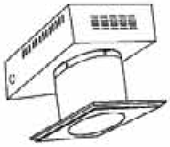
Designers who are unfamiliar with T5 lamps should be aware that these lamps take longer to warm up than other types and, therefore, longer to reach full light output. Where lights routinely remain on without interruption for hours at a time, this is usually not a problem. But when fixtures are cycled on and off each time a person enters and leaves a room, as they are when occupancy sensors are used, the long warm-up time can be inconvenient. It gives users the initial impression that there is something wrong with the lighting, because the rooms seem insufficiently illuminated. In my own office, the light output of the T5-fitted fixtures was still below 45 percent after 30 seconds of operation. But turning on more lights to make up the difference would have defeated the energy-conservation value of the occupancy sensors I had installed there. This problem is exacerbated in spaces that are kept cold, such as warehouses, where T5s have been installed in lieu of high-bay HID. Users may get used to it, but designers should tell their clients what to expect. When clients are unfamiliar with T5, it is always a good idea to do a mock-up with fixtures and controls to ensure that they—and you—are comfortable with the results before settling on a design.

Back at the bottom line

Whether you're putting T5s or T8s on your project, be sure to sharpen your pencil. There are so many viable design options that specifying an optimal one can be a challenge—nothing like the days when 99.9 percent of all buildings used 40-watt, cool-white T12 lamps. Choose and specify T5 components with care, and verify that replacements, especially ballasts, are readily available near the installation. The best way to know what your options are is to stay abreast of new developments in these advancing lighting technologies. ■

When a hole in your ceiling is *a good thing.*

Kenneth Rice Photography – www.kenricephoto.com



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Lighting Briefs

▲ View finders

Architectural Area Lighting has released two new products to follow the company's "Design with Light" floodlighting series. Pivot (above) uses energy-efficient fluorescent lamps and electronic ballasts in a compact luminaire design to wash a wall, highlight signage, or indirectly illuminate an indoor or outdoor space. Pivot is available in four individual lengths or can be used in continuous rows. The Cypher's (right) reflector/refractor optics provide smooth, even illumination for floodlighting and indirect-lighting applications. The design allows the fixture to be mounted in any orientation to address various lighting tasks in interior and exterior applications. 714/994-2700. Architectural Area Lighting, La Mirada, Calif. **CIRCLE 200**

▲ Architectural opus

The Opus Collection of low-voltage lighting products was specifically created by Prima Lighting to fill the high-end niche market. The Flame spotlight (top left) accepts louvers, filters, and diffusers. It includes a 6" suspension cord as standard but is also available with 12", 18", 30", or 36" suspension rods. The Opus Multi spotlight arrays (top right) are stylish enough to be used as chandeliers. Designers can choose the configuration that suits their needs and direct the light precisely where it is wanted. The fixture can be installed horizontally or vertically in four, six, or nine light versions. Both Flame and Opus Multi are available in a chrome or silver finish. 866/885-4915. Prima Lighting, La Mirada, Calif. **CIRCLE 203**

◄ Low-voltage tubular glass pendant

The Sirius Optic Pendant with Clear Glass Tubular Diffuser—or SLO3100, as it is known around the factory—is just one of the new lighting products in the Sirius low-voltage halogen lighting system. The pendant's adjustable clear-glass cylinder features an internal optic reflector and may be raised or lowered to the desired height. The reflector takes on a chrome finish when not energized and an iridescent blue tone when lighted. Eighteen optical coatings on a crystal reflector enhance the fixture's illumination capabilities, and an 86 percent reflectance casts a crisply defined beam with sharp edges and no lamp striations. Rated for use with 50-watt T4 xelogen lamps (clear or frosted) with vertical filaments. 800/728-0312. Con-Tech Lighting, Northbrook, Ill. **CIRCLE 201**

► Floating table lamp

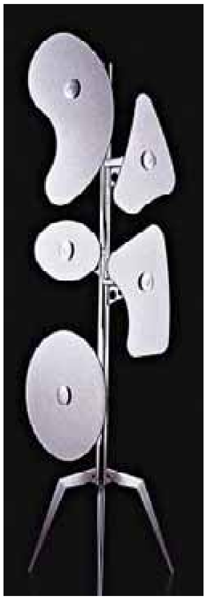
The Annoncé lighting line, designed by Sherry Williamson, AIA, will be introduced by Baldinger at Lightfair this month. Williamson, head of Sherry Williamson Design, of Mill Valley, California, specializes in custom lighting and furniture, overseeing the fabrication of her designs by skilled artisans. The open, sculptural table lamp comes in three sizes with a linen shade. 718/204-5700. Baldinger Architectural Lighting, Astoria, N.Y. **CIRCLE 202**

▼ Translucent light boxes

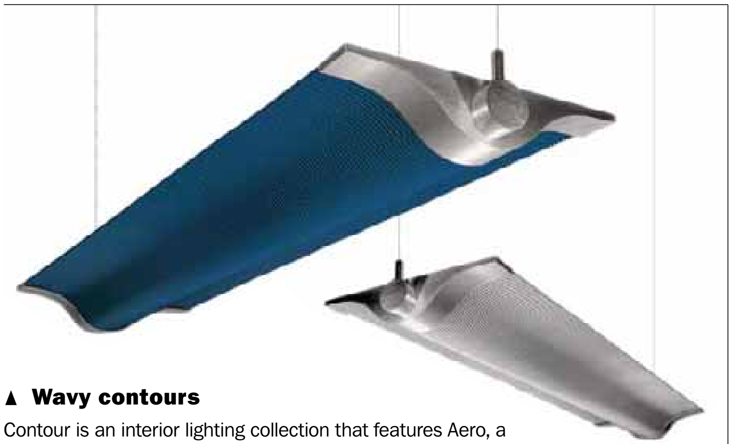
Resolute's Box wall lights feature Imago, KnollTextiles' resin/textile material. Imago is formed by a patented process in which a textile is heat-encapsulated between two sheets of engineering resin (PETG). The sconce features clear anodized aluminum hardware in six Imago options and two lamp styles: Box 1 and Box 2. Box 1 has a wider shade, while Box 2 is ADA-compliant and exposes the bulb through a circular cutout. 206/343-9323. Resolute, Seattle. **CIRCLE 204**

Lighting Briefs

► Out of this world luminaires



Last year, North American Light Spectrum (NALS) began to distribute fixtures from Foscarini of Italy to the U.S. market. This year, NALS expands upon its offerings with the 10th Anniversary Orbital Floor Light. This limited-edition floor lamp, with an updated design by Italian architect Furruccio Laviani, is composed of five frosted-matte-silver translucent glass plates in biomorphic shapes suspended from short metal arms. Also new from NARS is the Foscarini of Italy Maui collection of crescent-shaped ceiling and wall luminaires. 800/713-2182. NALS, Danbury, Conn. **CIRCLE 205**



▲ Wavy contours

Contour is an interior lighting collection that features Aero, a tightly corrugated aluminum material from Forms+Surfaces. The system comprises a standardized group of end castings, fittings, and accessories and is offered in an anodized finish in matte silver or a range of colors. Linear 4' and 8' elements (combined using the system's array of pattern connectors) and a wall sconce are available. 800/451-0410. Forms+Surfaces, Carpinteria, Calif. **CIRCLE 207**

► Well-lit block

Bega's new glass-block recessed wall luminaire is designed to illuminate indoor or outdoor areas, stairways, or halls where guidance and security lighting are required. The fixture has a die-cast aluminum faceplate with satin-matte crystal glass and flush stainless-steel fasteners. Light is emitted laterally from the projecting glass. It measures 3⅛" x 3⅛" x 3⅛". 805/576-5133. BEGA/US, Carpinteria, Calif. **CIRCLE 209**

► Miniature sun

LightDisc, designed by Alberto Meda and Paolo Rizzatto, features a limited overhang that makes it appear to be built-in. The fixture's optical system, integrated parabolic reflector, and diffuser lens with prismatized section allow it to fully exploit the potential of the new circular fluorescent bulb. The transparent lid houses a PVC disk that hides the screws that fasten the lens to the body. The lamp is airtight, can be used outdoors, and is offered in different versions and measurements. 212/989-6265. Luceplan USA, New York City. **CIRCLE 206**

▲ Linear system alternative

The Inde-Pendants family of individual pendant-mounted lighting fixtures offer the same performance and efficiency as many typical linear fixtures, according to the manufacturer. The new family includes four product styles, in two different housing sizes, each with two distribution choices and a variety of design and performance options. The fixtures are designed as an alternative to linear systems in offices, lobbies, libraries, classrooms, and other public spaces. 781/294-0100. Litecontrol, Hanson, Mass. **CIRCLE 208**

▲ Colorful entertainment

iColor Accent marries Color Kinetics' digital control expertise with the latest LED advancements in a low-voltage, indoor/outdoor direct-view linear light. iColor Accent is available in multiple lengths that are controlled in 1' intervals. It is appropriate for illuminating architectural highlights, such as building outlines, and other commercial, retail, or residential applications, with intricate shows of color. 888/FULL-RGB. Color Kinetics, Boston. **CIRCLE 210**

New Products

Landscape products can bring the exterior areas of a building down to human scale, provide secure public spaces, and help protect the natural environment. To learn about the newest resources available, **landscape architects, urban planners, and other design professionals** will gather at the American Society of Landscape Architects' 2003 Meeting & Expo, held 10/30–11/3 in New Orleans. *Rita F. Catinella*

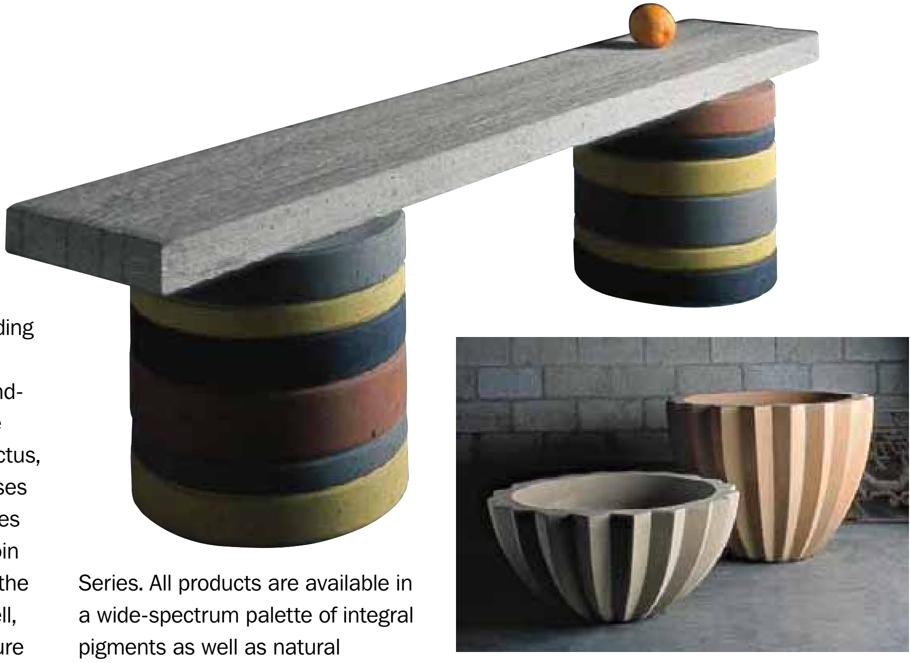
Colorful concrete site furnishings

Kornegay Design, a source for cast-concrete site amenities, has introduced a new concrete bench and two new styles of landscape containers. The firm was formed after designer Larry Kornegay learned about the poor selection of planters on the market appropriate for a contemporary residence.

"I design with the intention of providing a key transition between structure and surrounding landscape," explains Kornegay. "The human scale of planters and benches presents opportunities for individual interaction with man-made objects that I hope will enhance public awareness of the multitude of visual delights to be discovered in urban and natural surroundings."

For his newest bench design, Kornegay combined a base made of multicolored cast-concrete disks and a wood-textured concrete plank. The disks can be colored according to site requirements.

The Mex Bold Series of landscape containers replicates the natural ridges of a melon or cactus, and the Square Series showcases the potential for smooth surfaces in concrete. These two series join three other planters already in the collection: the spherical Nutshell, featuring an outer surface texture reminiscent of walnut shells; the crisply geometric Faceted Series; and the softer, flowing Ribbed Series. All products are available in a wide-spectrum palette of integral pigments as well as natural concrete color. 480/967-6787. Kornegay Design, Tempe, Ariz. **CIRCLE 215**



The Happy Trail Bench and Mex Bold Series showcase the potential of colored concrete in landscapes.

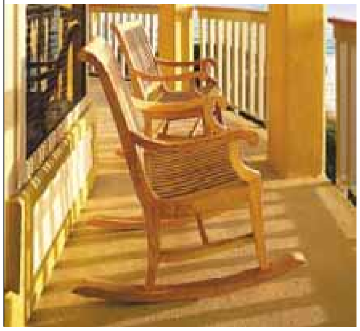
Planters are one of the applications of the recycled product.

Parking curbs that may have been your old Buick

In response to a demand for alternative composite materials, Universal Forest Products has expanded its product mix to include XPotential Products, a line of recycled multipurpose posts, landscape ties, and parking curbs made from recycled automobiles. Based in Canada, XPotential Products manufactures plastic components with 100 percent recycled materials, including the nonmetallic by-product of recycled automobiles, such as fabric, carpet, paint, foam, and post-consumer/industrial plastics. With a life expectancy of 75–100 years, according to the manufacturer, the products are designed to outlast and outperform concrete, reducing maintenance and replacement costs found with traditional concrete or wood alternatives. The composite has a shock-absorbing capability that makes it less prone to chipping and cracking, and it will not twist, splinter, rot, or decay due to weather, pests, road salt, or chemicals. However, the flexural strength of the composite is less than that of wood, and it should not be substituted for wood products without regard to engineering considerations and testing for the intended application. 800/598-9663. Universal Forest Products, Grand Rapids. **CIRCLE 216**

Teak rocking chair

The Avignon rocker has detailing worthy of formal dining furniture, yet its Grade A quality teak construction makes it at home outdoors. The rocker features a dished seat, concave back, and scrolled arms. The front of the rocker's seat meets the back of the knee in a smooth curve that won't cut off circulation. A new table also joins the Avignon Collection. 800/981-9888. Smith & Hawken, Novato, Calif. **CIRCLE 217**



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▲ You may approach the bench
The Leesburg Series is the latest collection from Keystone Ridge Designs. The Leesburg bench is safeguarded with the company's trademark Keyshield powder coating that is rust-, abuse-, and sun-fade-resistant. The collection also includes a litter receptacle and planter. Keystone offers an expansive collection of landscape furnishings, including food-court seating, ash urns, planter stands, tables, chairs, bike racks, bollards, and wayfinding signage. 800/284-8208. Keystone Ridge Designs, Butler, Pa. **CIRCLE 218**

► Composite deck and railing system

ChoiceDek is a patented composite decking material manufactured with recycled wood fiber and recycled polyethylene that provides a water-resistant product practical for deck, railing, dock, and marine applications. ChoiceDek saws, drills, and finishes like wood and will fade to a gray shade over time. Hidden channels in the railing can be used for lighting wire, and support rails on top and bottom are notched for easy assembly and to hide fasteners. 866/233-2766. Weyerhaeuser, Federal Way, Wash. **CIRCLE 220**

▲ Memorable lounger
New to the Henry Hall Designs Flexy Collection is the Flexy Batyline Mesh Curve Chaise. The Batyline cover is a French-made material consisting of polyester fiber covered by a coating of PVC that is resistant to rot, mildew, and UV radiation. Sagging is minimal due to a maximum stretch of 3 percent and a "memory" that allows it to slowly stretch back to its original wave shape. The stainless-steel frame does not contain any movable parts, as the chaise is set in a fixed position. 800/767-7738. Henry Hall Designs, San Francisco. **CIRCLE 222**

▲ Lunch break oasis
The Sonoma Bench Collection, designed by Brian Kane, features a wood seat with a metal back and optional arms. The gently curved, perforated metal back lets the natural setting show through. The benches are at home in outdoor corporate, educational, and retail settings, as well as interior spaces. Designed and built to meet the rigors of urban spaces, Sonoma introduces an optional tablet arm to accommodate a coffee cup, newspaper, or laptop. 800/521-2546. Landscape Forms, Kalamazoo, Mich. **CIRCLE 219**

◄ Hardscape foundations
A key element to the "hardscape" of many projects is the use of brick pavers in an increasing array of colors and styles. Two new offerings are the Rumbled Full Range clay paver (left) from Pine Hall Brick, and the Capella natural clay wall cap (below), a decorative enhancement for walls of brick, concrete brick or block, and stucco, that is available from Pacific Clay Brick Products. 703/620-0010. Brick Industry Association, Reston, Va. **CIRCLE 221**

▼ Seaside dining set
Weatherend Furniture, known for its signature curves and symmetrical slats, has added several new pieces to its outdoor furniture collection. The Seal Cove dining set includes an 80"-long dining table to comfortably accommodate six. The Seal Cove dining chair features a slatted back detail and curved crest rail design and is also available in a slatless version. Each piece in the set is constructed from mahogany using full mortise and tenon joinery bonded with a durable marine grade epoxy. 800/456-6483. Weatherend Estate Furniture, Rockland, Maine. **CIRCLE 223**

Product Briefs

◄ Safety laminate for the lift

ChromaSurface surfacing material allows specifiers to use laminated safety glass for the interior walls of elevator cabs. Using the Cesar Color process, ChromaSurface is made by laminating a printed interlayer material between two pieces of safety glass to create a sandwich. Cesar Color's printing capability can make the film in any color, incorporate a company logo, or impersonate virtually any natural or man-made material. 800/275-7272. Cesar Color, Phoenix. **CIRCLE 224**

▼ The Wright accessories are everything

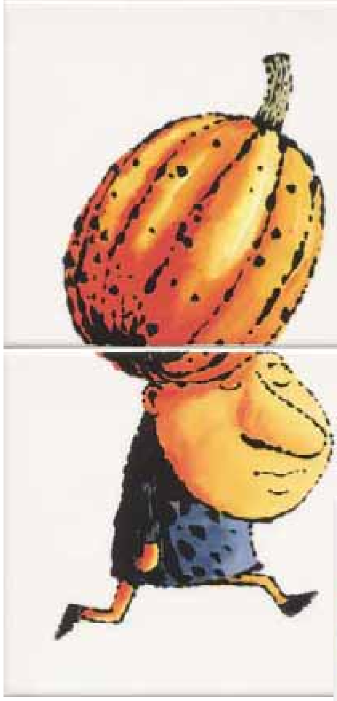
The Frank Lloyd Wright Preservation Trust catalog features an extensive collection of accessories inspired by Wright's timeless designs, as well as a wide selection of books on Wright. Inspired by Wright's Francis Little House in Wayzata, Minnesota (1912, demolished in 1972), the cast-bronze-resin tea-light holder shown here holds five tea lights and is accented with an oak detail from the Francis Little living room. 877/8484-3559. Frank Lloyd Wright Preservation Trust, Oak Park, Ill. **CIRCLE 225**

► Better than the real thing

Eldorado Stone's architectural stone veneer is composed of Portland Cement, lightweight aggregates, and oxide dyes used to create accent colors. The stone is about half the price of natural stone and is approximately one third the weight. To create an authentic look, the stone veneer is cast from advanced custom molds made from thousands of hand-selected natural stones chosen by artisans at Eldorado Stone. Shown here is Teton Shadow Rock applied with a dry-stack grout technique. 760/736-3232. Eldorado Stone, San Marcos, Calif. **CIRCLE 227**

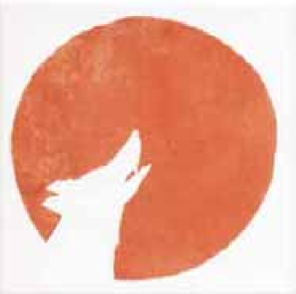
Product of the Month
Environmental Impact Collection

Two years in the making, the Environmental Impact Collection of colorful seating and panel fabrics offers nine products that exceed Association of Contact Textiles standards for quality and performance. The sustainable manufacturing processes used in the production of the textiles reduce energy use, greenhouse gas emissions, waste sent to landfills, process-water consumption, and consumption of petroleum. No fabric in the collection requires the chemical backing typically used to adhere fabric to the final seating or panel systems. This eliminates a key hurdle in making contract textiles recyclable in the future—a central goal of the fabric's creators at The Designtex Group. The LEED specification program will soon provide credits for projects that include sustainable textiles. 800/333-9939. Steelcase, Grand Rapids, Mich. CIRCLE 226



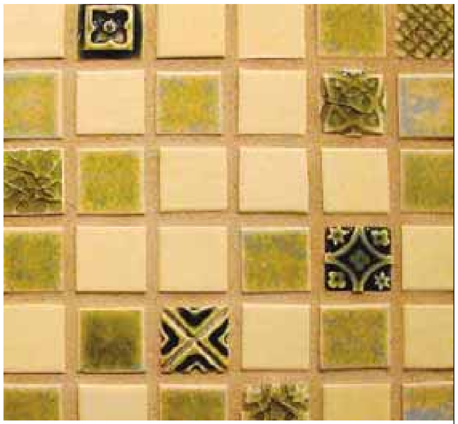
◄ Portuguese wall art

The ART collection of ceramic wall and floor tiles was inspired by the colors, environment, and mythical characters of the Douro Region of Portugal. Sombras, by sculptor João Castro Silva, features silhouetted night scenes (below); Gastromania, by painter João Vaz de Carvalho, focuses on whimsical characters carrying ingredients (left); Doiro, by sculptor Rui Vasquez, evokes the region's vines and rivers; and Afrodisíaco, by painter Bela Silva, features bizarre erotic couplings. 351 234 660100. Revigres, Agueda, Portugal. **CIRCLE 228**



Product Briefs

► Ceramic eye candy



In 20 years, Pratt & Larson has grown from two artists working in a home basement studio to more than 70 people producing the nearly 1,000 items that make up the company's current product line. Pratt & Larson's decorative 1" x 1" bas-relief tiles are available in two pattern styles—12 geometrical and 12 botanical designs—in hundreds of color combinations. The decorative relief designs are available either in a single-glaze color or with hand-painted detail to accent the design, in a process known as polychroming. 503/231-9464. Pratt & Larson Ceramics, Portland, Ore. **CIRCLE 229**

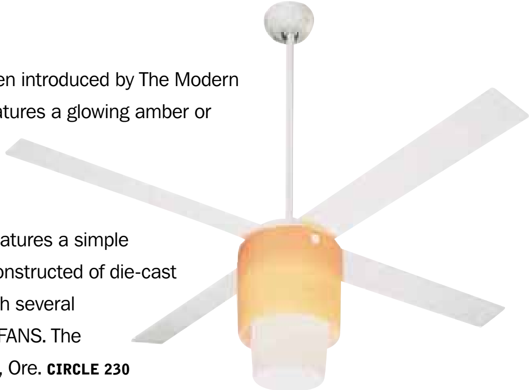
▲ Safe haven in a storm

A new residential storm shelter, engineered to help protect families from the dangers of tornadoes, is available from DuPont. The DuPont StormRoom with Kevlar is a residential in-home storm shelter available in several rectangular configurations that features the strength of Kevlar sheathing built inside reinforced wall panels. When properly installed, the shelter helps to stop and deflect wind-borne debris, the greatest threat from a tornado. The StormRoom complies with the Federal Emergency Management Agency Standard 320 for a tornado shelter. 804/383-3845. DuPont Advanced Fibers Systems, Richmond, Va. **CIRCLE 232**

▲ Easier arches

The Easy-Arch product line allows for quick installation of arched doorways, room transitions, and other home features. Available in a variety of standard sizes and dimensions, Easy-Arch preformed metal applications easily secure to framing to create an arch at a fraction of the cost of forming the shape in a traditional manner. Easy-Arch products are designed to be nonstructural and non–load bearing, requiring no additional permits or engineering. 800/854-2461. Easy-Arch, Murrieta, Calif. **CIRCLE 234**

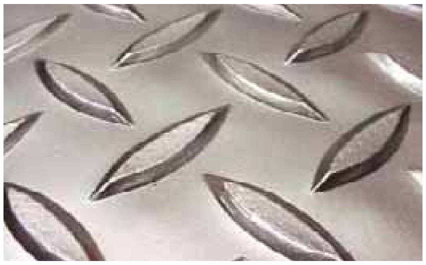
► Fan club



Three new ceiling fans have been introduced by The Modern Fan Company: Halo (shown) features a glowing amber or all-white glass center; New Aurora incorporates a 40-watt, T5 lamp positioned in a translucent diffuser; and Ball features a simple sphere housing. The fans are constructed of die-cast aluminum or zinc and come with several switching packages. 888/588-FANS. The Modern Fan Company, Ashland, Ore. **CIRCLE 230**

▼ Simulated steel for safety

Lonseal's toughest sheet vinyl, the Lonplate safety surface, has added a new pattern to its range of designs—Titanium. The Titanium pattern features an aluminum-sheen finish that is suitable for a range of interiors, including retail outlets, vehicle cabins, and other spaces where rugged slip-resistance is the key to safety. 800/832-7111. Lonseal, Carson, Calif. **CIRCLE 231**

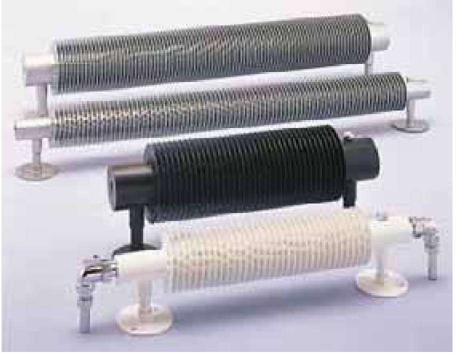


◄ First-ever wood screen

Marvin has introduced the fenestration industry's first wood screen, according to the manufacturer. The screen's frame has an all-wood interior that can be painted or stained to blend into the woodwork, and an extruded aluminum exterior that provides strength and rigidity to prevent warping. The screen is one of several options on Marvin's new Casemaster window, including an ergonomically designed handle. 888/537-8266. Marvin Windows and Doors, St. Paul, Minn. **CIRCLE 233**

▼ Radiant interiors

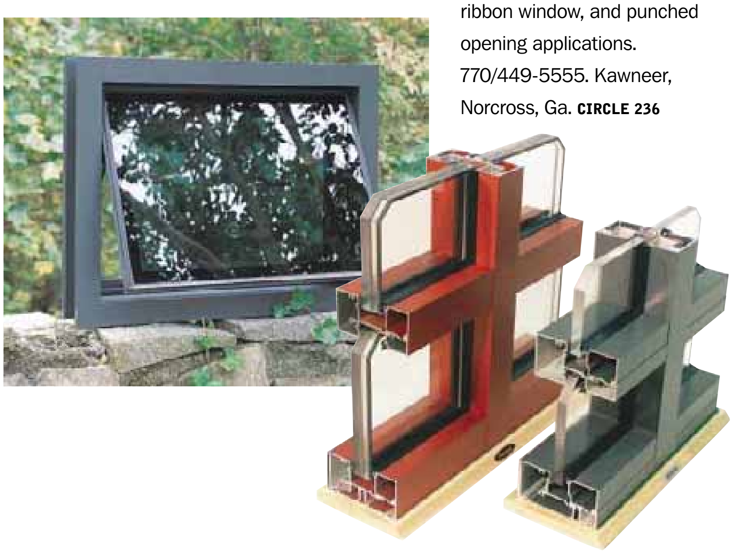
The steamlined Flow Form radiator from British company Bisque is now available in the U.S. The long, low lines and "gills" of the Flow Form increase the surface area of the radiator and maximize heat output, while the compact dimensions are suitable for small spaces. Italian designer Mario Talin redesigned the radiator, incorporating stylized feet and integrated pipe-work connections. He has also completed a new stainless-steel version suitable for steam-heating systems specifically for the U.S. market. 212/791-7070. 3-D Laboratory, New York City. **CIRCLE 235**



Product Briefs

▼ Tested storefront and curtain-wall systems

Storefront and Curtain Wall GLASSvents are visually frameless windows than can be incorporated into Kawneer's major storefront and curtain-wall systems for single- to multistory projects. Both versions are available as project-out or outswing casement windows. Also new from Kawneer are IR (Impact Resistant) 500/501 Framing Systems and 350 IR Entrances that are large-missile impact-resistant and fully tested. The systems are engineered for single-span storefronts, low- to mid-rise ribbon window, and punched opening applications. 770/449-5555. Kawneer, Norcross, Ga. **CIRCLE 236**



◄ Signs of protection

InPro Signscape signs (near left) meet ADA, wayfinding, room-identification, or general-information requirements, as needed. Styles include tactile, partial and flush inlay, engraved lettering, and Grade 2 Braille. EnviroGT wall-protection products (far left) are manufactured from 100 percent recycled high-density polyethylene and certified wood. The line includes impact-resistant handrails, wall guards, and corner guards. 800/222-5556. InPro, Muskego, Wis. **CIRCLE 237**

► Getting that extra edge

Regency Company now offers custom edge moldings in Nevamar's Bravissimo collection of high-pressure laminates. The collection includes five granite designs in a range of colors, and it uses Nevamar's Armored Protection for increased wear resistance. 800/869-4724. Regency Company, Matthews, N.C. **CIRCLE 238**

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Product Briefs

VACUFLO
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▲ Cyclonic central cleaning

Vacuflo's True Cyclonic Cleaning Action central vacuum system operates without bags or filters. The filtration system transports 96 to 98 percent of all dirt, debris, and dust particles through a network of tubing that runs through the walls and is deposited into a clear dirt canister, while the remaining fine dust particles are vented so they are not recirculated into the home. The in-wall tubing is installed in less than one day with no structural modifications needed. Vacuflo's no-vent option makes it an option for condominiums, apartments, or town houses. 800/822-8356. H-P Products, Louisville, Ohio. **CIRCLE 241**

▲ Homeland security

The Kwikset Grade 1 dead bolt (model 980, single cylinder shown) is part of the Kwikset UltraMax Security line of residential door hardware. The dead bolts are available in single and double cylinders. They are included on the Arlington, Chelsea, and Sheridan handle sets, which feature a titanium-alloy throw-bolt core, a 6-pin cylinder with anti-pick pins, and an Ultra-Strike Door Jamb Brace designed to prevent forcible entry. 800/327-LOCK. Kwikset, Lake Forest, Calif. **CIRCLE 239**

► Remote surveillance

GE's new SmartHome Security and Surveillance devices operate using wireless 2.4 Ghz radio frequency and various sensor technologies. The SmartLink Security System includes features such as wireless door/window, motion, smoke/fire, carbon-monoxide, glass-break, freeze, and water sensors. GE also offers a magnetic door alarm with programmable key pad and an indoor magnetic window alarm. 800/435-4448. GE Home Electric Products, Cleveland. **CIRCLE 240**

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Product Briefs

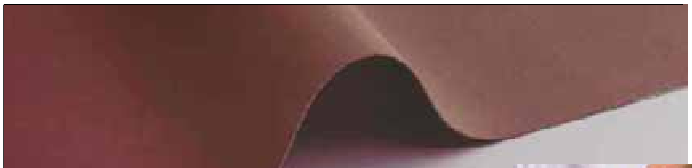
PHOTOGRAPHY: © ROBERT JACOBS FOR CAROLYN RAY

► Hand-screen-printed wallpaper

Mahandi is the latest hand-screen-printed wallcovering from Yonkers, New York–based designer Carolyn Ray. Named after the Mahandi tree that produces henna sap for the arms of Indian brides, the pattern on the 27"-wide Class A fire-rated wallpaper is a companion to an earlier design from the company named Foo Lim. Mahandi features a leafy cascade motif in four color offerings: Taj Express, Monsoon, Darjeeling (shown), and Groove Mahal. Mahandi is printed on acrylic-coated paper or contract-weight vinyl and has a 36" half-drop repeat. 914/476-0619. Carolyn Ray, Yonkers, N.Y. **CIRCLE 245**

► Watertight seal

Foam-Tite soft-foam TPV seals for use in residential weather-seal and commercial-glazing applications are made with Santoprene thermoplastic vulcanizate (TPV) using an environmentally responsible water-blown extrusion process. The soft foam with closed-cell construction absorbs less than 2 percent of its body weight even after 24 hours total immersion in water. 330/849-5000. Advanced Elastomer Systems, Akron, Ohio. **CIRCLE 246**



▲ Coating collaborations

The Sto Watertight Coat is a flexible and breathable waterproofing membrane based on a combination of acrylic emulsion, Portland cement, and fine fibers. It is used to waterproof all types of above- or below-grade concrete and masonry, including foundations, block walls, balconies, parapets, planter boxes, water tanks, and fountains. 678/553-3278. Sto, Atlanta. **CIRCLE 247**

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Product Literature

Landscape lighting solution

Allscape offers a new brochure detailing Focca, the company's newest family of contemporary above-ground floodlighting fixtures. The eight-page brochure provides a range of black-and-white photographs highlighting the features and benefits of the luminaire. 800/854-8277. Allscape, Santa Ana, Calif. **CIRCLE 248**

Safety stair and floor systems

Musson Rubber's new catalog illustrates safety products, including the company's fire-safety, grit-strip, and glo-strip stair systems, and those for the visually impaired. Matching flooring, including Disco, Low Disc, Square, and Diamond tiles, are displayed in an expanded color line with related accessories. 800/321-2381. Musson Rubber, Akron, Ohio. **CIRCLE 249**

Prismatic lighting fixtures

A color brochure from Holophane, *Illuminaire, The New Shape of Light*, details the company's new line of prismatic glass lighting fixtures. In addition to showcasing each new shape, the brochure details fixture advantages, finishes, lamp choices, mounting heights, and options. 740/345-9631. Holophane, Newark, Ohio. **CIRCLE 250**

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Southern pine lumber guide

The Southern Forest Products Association has published the 2003 edition of the *SFPA Buyer's Guide* containing a complete listing of products and services available from its members. This annual directory presents the full range of products manufactured, as well as services and equipment, grade separations, and more than 40 specialty items produced by member mills. 504/443-4464. Southern Forest Products Association, Kenner, La. **CIRCLE 251**

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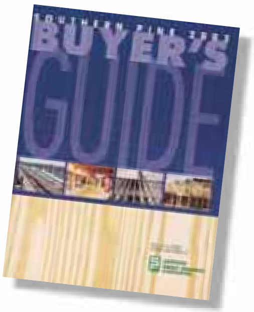

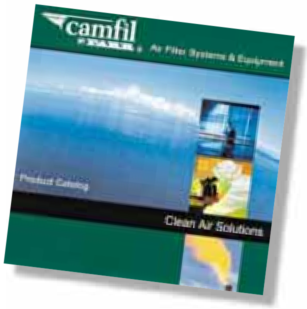

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Product Literature

Wireless panel system

Armstrong is offering a new brochure on its i-ceilings Wireless Systems, an in-building system that integrates antennas with acoustical ceilings to enable clear, reliable coverage for wireless communications inside commercial interiors. The brochure explains applications and benefits, and includes illustrations depicting how typical in-building voice and data systems work with i-ceilings. 877/276-7876. Armstrong World Industries, Lancaster, Pa. **CIRCLE 252**

Antique-woods seminar on CD

Goodwin Heart Pine Company, one of the leading manufacturers of original-growth heart-pine and heart-cypress flooring, has compiled a CD seminar especially for designers, architects, and builders. The course takes about two hours and is available in PC and MAC formats. Upon completion, two continuing-education credits can be earned from most major professional organizations by completing a form online or faxing it to Goodwin. The viewer will learn about antique woods, how to evaluate variation grades, compare characteristics of antique woods, and ensure the receipt of true original growth woods. 800/336-3118. Goodwin Heart Pine Company, Micanopy, Fla. **CIRCLE 253**

Tensile structure brochure

Birdair's new corporate product brochure features lightweight structural systems for architectural designs, including stadiums, amphitheaters, transportation terminals, retail centers, convention centers, and museums. It also features shade structures, including cafés, pool patios, cue lines, playground shade, bus depots, and car parks, to complement outdoor architecture and landscape designs. 800/622-2246. Birdair, Amherst, N.Y. **CIRCLE 254**

Air-filtration aides

Camfil Farr has released a new catalog that incorporates the company's full range of air-filtration products. Available in CD and binder formats, the catalog includes product and technical information on the comfort-air, clean-processes, and safety-and-protection lines. In addition, the CD includes technical bulletins on several timely air-filtration topics, including "Mold and Air Filtration" and a review of "ASHRAE Testing for HVAC Air Filtration." 973/616-7300. Camfil Farr, Riverdale, N.J. **CIRCLE 255**

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AIA HONOR AWARDS *(continued from page 151)*

aspect that is more than a styled image is the interior vertical campus, an attempt at creating a dynamic space of interaction, of scratching at something beneath the surface.

Machado and Silvetti seem, on the other hand, to be *re*constructing when they piece together forms clad in various materials to compose the branch of the Boston Public Library in Allston, Massachusetts. Wood paneling and stone cladding held in place by extraordinarily overscaled metal clips draw attention to the surface, and their application to distinct shapes suggests more programmatic than spatial ambitions.

One of the “real” deconstructivists included in the MoMA show, Bernard Tschumi, claims that his Rouen complex “provides a strong contemporary image for the cultural development and economic expansion of the district.” This image, however, cannot be completely captured in photographs. In fact, programmatically, the image glimpsed from the highway must make a strong, albeit fleeting, impression in order to attract users to the site. Rigorous and modern, the glazed exhibition hall and steel-clad theater play the transparent against the opaque, suggesting the openness of the market and the hidden magic of the stage. This project is beyond deconstruction.

Morphosis, on the other hand, celebrates the tilted planes and fragmented forms associated with deconstruction in an organization of buildings and landscape that comprises Diamond Ranch High School. Though clad in the corrugated metal and concrete typical of the contemporary tactile materials project, here the choices are wisely resilient, and the interior street that results from the plan organization is a welcome urban space of interaction, both formal and found.

Steven Holl’s new Simmons Hall dormitory for MIT absorbs a “sponge” motif, which is merely Holl’s cool explanation for a building of immense complexity. An arresting image and form, the perforated facade and hollowed-out atria set a precedent in dormitory design. Likewise, Williams and Tsien attempt to make “the extraordinary from the ordinary.” While circulation spaces animate the interior of their American Folk Art Museum, the architects still push a folded and articulated tombasil metal [a white bronze alloy] surface onto the exterior, both to call attention to the small museum (hidden in the arms of MoMA) and to give it a self-reflective image.

Perhaps the most striking image—both for its formal qualities and its consistent Modernism—is Richard Meier’s federal courthouse in Central Islip. There is something to be admired in Meier’s unwavering dedication to an aesthetic that, clad in brilliant white metal and glass, never fails to say “Modern.” Sadly, however, it also seems to mark the end of an era: the end of geometric formalism, the end of Le Corbusier, the end of the smooth white panel. It’s an end that Meier himself must see coming, when an Honor Award is given to something as colorfully banal as Rios Associates graphics-as-architecture in the Los Angeles Primary Centers.

The worst offense in architecture today—an act that capitulates to media—is the substitution of graphics for content. At the very least, the articulated surface—whether oversize clips on stone or hand-cast bronze—offers a resistance to the complete collapse of architecture into the glib surface. It may not be far off when a project like Asymptote’s Virtual Stock Exchange, itself created to enhance the image of the New York Stock Exchange, will appear as a design winner. In fact, this unpremiated work should already have been recognized by the Honor Awards program. For only by acknowledging the nonspatial will architects understand design’s function as image as well as the nature of its physical, tactile, and spatial properties in a changing world. ■

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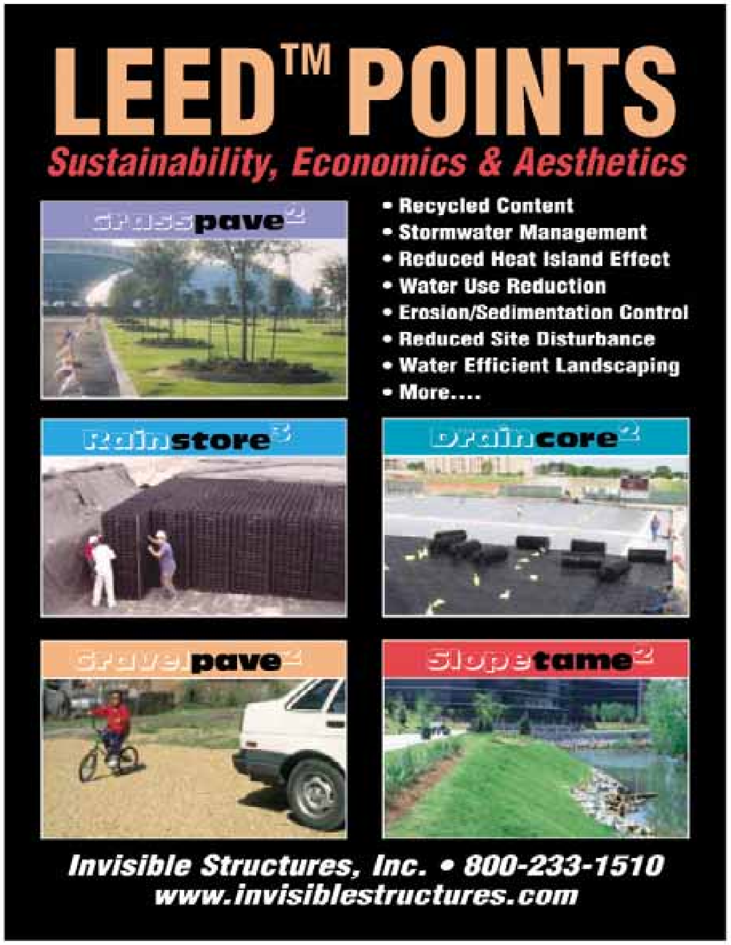

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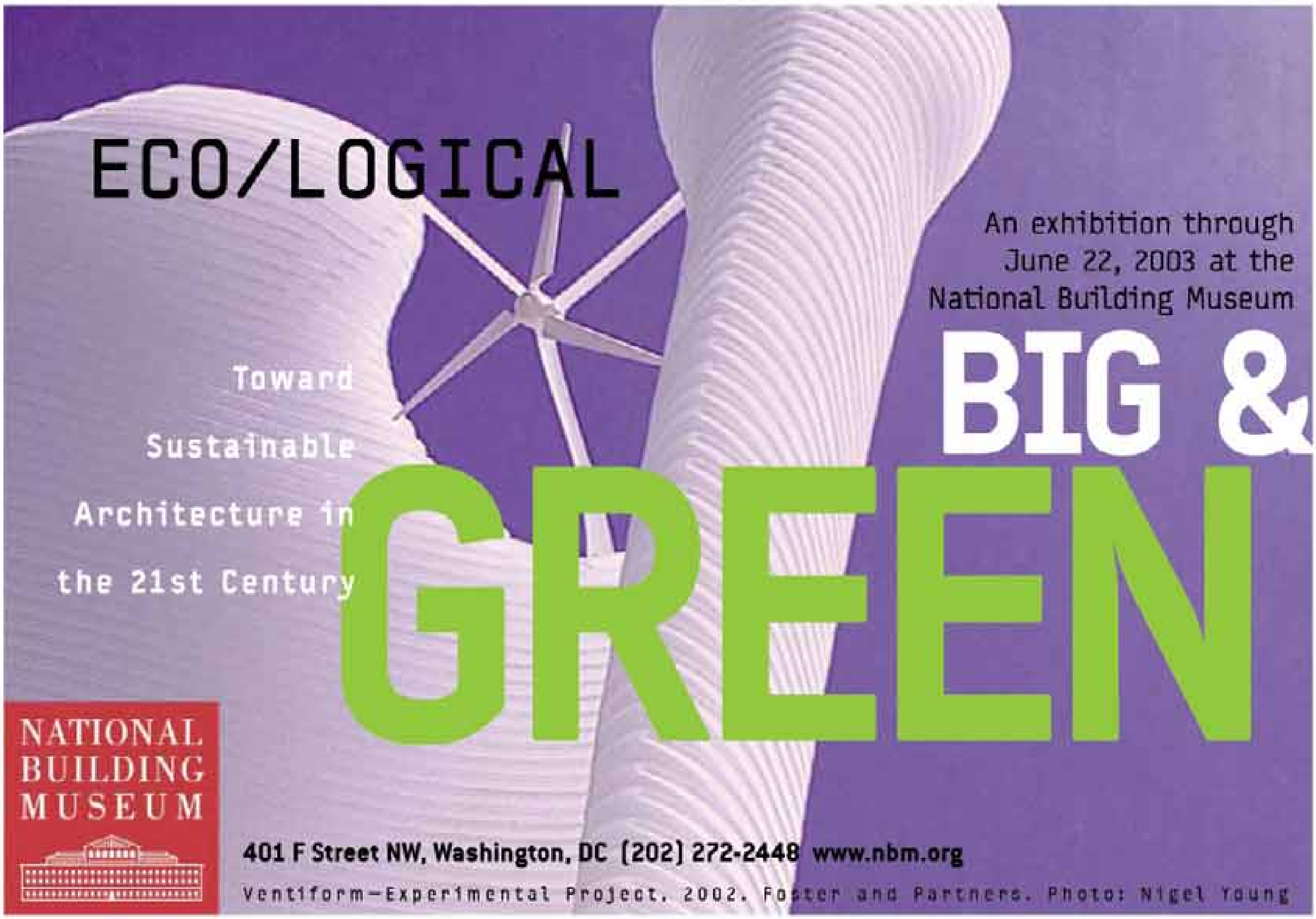
ECO/LOGICAL
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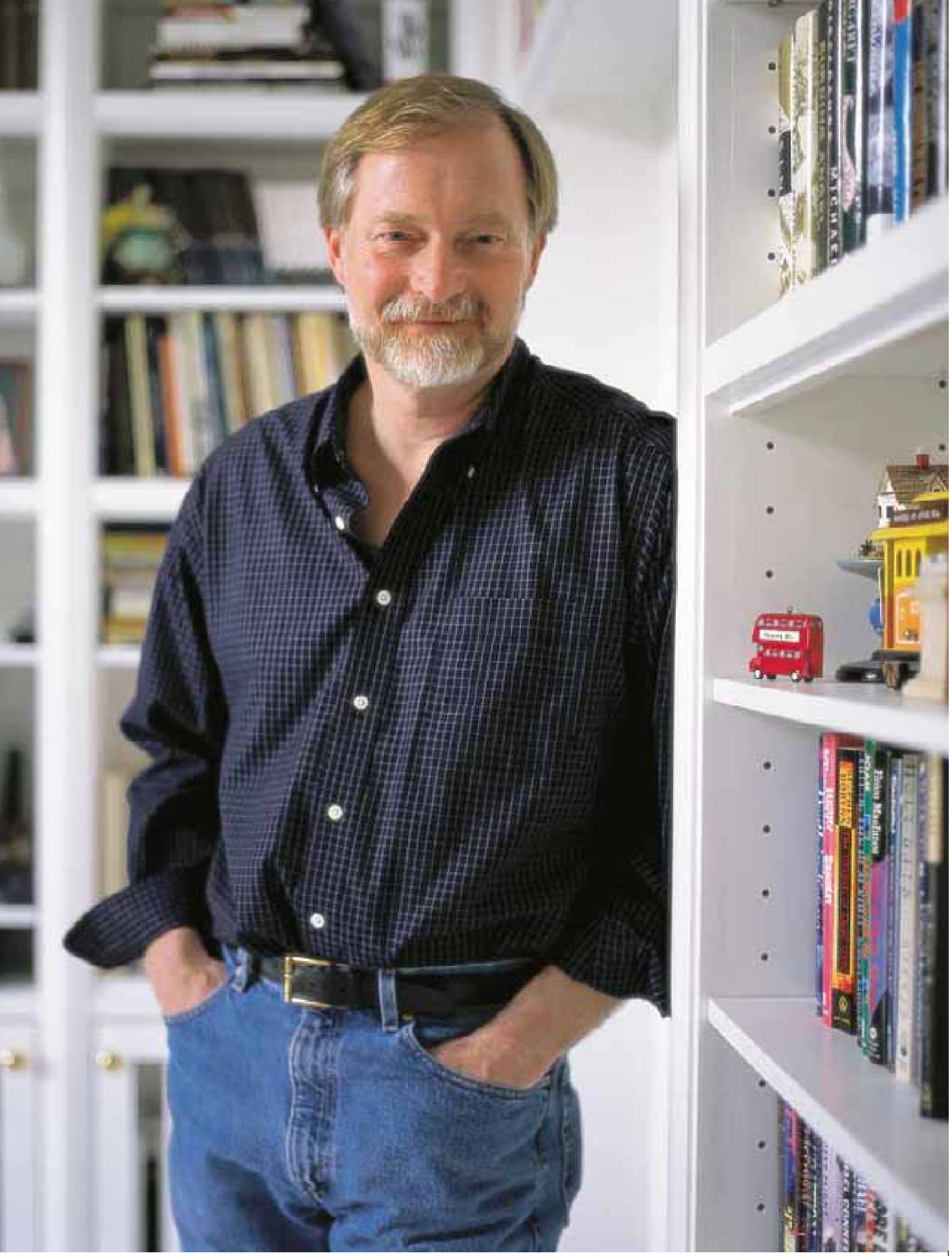
Ventiform—Experimental Project, 2002, Foster and Partners. Photo: Nigel Young



Writer Erik Larson adds madness and magic to architectural history

Interviewed by Suzanne Stephens

At the top of the New York Times' *nonfiction best-seller list for March 23, 2003, was a book vividly recounting the history of the World's Columbian Exposition in 1893. Yet* The Devil in the White City: Murder, Magic, and Madness at the Fair that Changed America *(Crown), by Erik Larson, is not your normal architectural history. In the developing genre of a "narrative historical nonfiction," Larson, a journalist and author, has woven together the true stories of two men who built structures related to the Chicago World's Fair. One was Daniel H. Burnham, chief planner for the fair; the other was Dr. Herman Mudgett, alias H.H. Holmes, a serial murderer who designed the World's Fair Hotel, where single women checked in, but didn't check out.*

Q: *How did you conceive of this dual thematic device for a book about the fair?* I didn't want to do a book just about H.H. Holmes—he was too over the top. But the story of Holmes in the context of the fair had a creepy juxtaposition in time and space between this magical, brilliant endeavor and these acts of absolute darkness.

What can you say about your approach? I look for hidden nuggets of information and try to bring out the stories that historians put into footnotes. Fortunately, Burnham's story is a classic narrative you can't make up: Burnham sets out with John Root as a team, in which Root is the actual creative one [the consulting architect], and Burnham is the executor [chief of construction]. The two get this job to do this impossible thing, and then Root dies. Then, with all the obstacles, such as the bad soil, snow, rain, and finally a national depression that began the week the fair opened, the story became irresistible.

Did you have difficulty ferreting out all the facts about the peculiar-looking World's Fair Hotel, in Englewood, with its hidden crematorium and gas chamber? Holmes's hotel was described in news accounts, with floor plans published. And several photos exist.

You point out that the fair attracted 27 million visits in a country with a population of 65 million, and a city of one million. Yet trains were quite expensive. According to one account, second-class seats on trains from New York to Chicago cost $17 one-way (which would translate into $560 today). The tickets to the fair were 50 cents ($16.50 today), and the Ferris Wheel cost 50 cents. Figuring out comparative costs between the two periods is difficult. The railroad and admission fares were considered steep but not unaffordable. The big challenge was to keep the prices low enough to attract maximum attendance. Yet the railroads wouldn't give discounts. People went to huge lengths to get to the fair. I couldn't find great sociometric numbers, but by steeping myself in the literature of the time and newspaper accounts, I gather that people of all kinds were there. Also, a lot of free passes were given out—many to the upper classes. It drove Burnham crazy.

The architecture community is naturally happy when an architectural book, especially a history, becomes a best-seller. Architecture is a great story, but it is a hard sell to the reader—which is perplexing if you think of the impact of architecture on all of us. I had this desire to be an architect, but I realized that I had to know engineering and math. It wasn't for me. Instead, I studied Russian history at Penn, went to Columbia University's journalism school, and then worked for places like *The Wall Street Journal* and *Time* magazine. Yet, I remained interested in architecture. Chicago—and New York—are cities of great architectural interest. But you do need a great story to go with it.

Portrait by Benjamin Benschneider